THE ACQUISITION OF TENSE AND AGREEMENT BY EARLY CHILD SECOND LANGUAGE LEARNERS

BY

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DISSERTATION

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ABSTRACT

This longitudinal study examines the acquisition of tense and agreement morphology by child L2 learners in an early stage of language acquisition. The objectives of this study are twofold. The first is to observe the development of verb inflections and syntactic competence over time from an early stage by Chinese child L2 learners of English. The second is to determine the similarities and differences in the acquisition of verb inflections by comparing child L2 learners of this study with child L1 and adult L2 learners from the literature in this field. Participants included six Chinese-L1 English-L2 children between the ages of 7 and 9, with a length of residence in the United States between four and six months. Data were collected regularly over a period of seven months. Tasks include a conversation with the investigator on general topics, and an elicitation task via picture description. Speech production samples were audio-recorded and later transcribed to analyze the use of verb inflections: the third-person singular *–s*, regular past form *–ed*, copula *be*, and auxiliary *be*, and the use of related syntactic properties: the use of overt subjects, and the case of subject pronouns. Based on previous research, the study adopts the Separation Hypothesis, claiming that abstract properties can be present in the syntactic representation in the absence of overt morphology, and the acquisition of syntax triggers the acquisition of morphology. Results demonstrated the early acquisition of syntactic properties, the use of overt subjects and the nominative case for the subject pronouns, while conversely, verb inflections were largely omitted. This suggests that the functional category [Infl] is already in place in the L2 initial state and that syntax acts as a trigger for the acquisition of overt morphology. The Separation Hypothesis is consequently supported.

To Father and Mother

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CHAPTER 1

THEORETICAL BACKGROUND

1.0 Introduction

In English, the grammatical morphemes, such as *–s* and *–ed*, are added to verbs to show the grammatical features of person and tense. Their meaning becomes apparent when they are used in a sentence: *He lives in Chicago* or *He lived in New York.* The *–s* attached to verbs shows the grammatical features of person (i.e., the third-person singular pronoun) and tense (i.e., present). The *–ed* attached to verbs denotes a past event. In English, verbs are inflected for person and tense, and thus, the *–s* and *–ed* of *lives* and *lived* can be referred to as verb inflections.

Previous research has shown that the acquisition of verb inflections presents difficulties to L2 learners. The omission of verb inflections has been frequently observed in the speech production of L2 learners. A body of research on adult L2 acquisition suggests that years of exposure do not seem to be correlated with accuracy in the use of verb inflections (e.g., Birdsong & Molis, 2001; Flege, Yeni-Komshian, & Liu, 1999; Johnson & Newport, 1989), and that the inconsistent use of verb inflections may remain permanent in most adult L2 learners (e.g., Clashen & Hong, 1995; Eubank, 1993; Lardiere, 1998; Prévost & White, 1999; White, 2002). Compared with adult L2 learners, the inconsistent use of verb inflections is a temporary phenomenon in child L2 learners in the early stages of language acquisition. After years of exposure to L2, child L2 learners are expected to achieve native-like mastery of verb inflections.

The same observation applies to English monolingual children in early childhood. Comparing to L2 learners, the inconsistent use of verb inflections is attributed to a developmental phenomenon in early language of monolingual children. The longitudinal study of

Brown (1973) on the acquisition of English morphemes shows that children master nearly all the morphemes between the ages of 2.5 and 4. Moreover, early studies on the acquisition of verb inflections (e.g., agreement *–s* or regular past tense *-ed*) by English monolingual children show a close relationship between the acquisition of morphology and syntax. Rizzi (1993) posits the Root Infinitives (RI) phenomenon, suggesting a developmental relationship between the acquisition of verb inflections and syntactic competence. The RI phenomenon has been shown to occur in young children with different L1 backgrounds in the early stages of language acquisition. It has been observed that during the RI stage, young children demonstrate an optional use of verb inflections with syntactic consequences for their speech production: the licensing of null subjects in non-null subject languages, the case assignment of subject pronouns, and verb movement in verb-raising languages.

Here let us look at the syntactic property - the licensing of null subjects in English to illustrate the relationship between the acquisition of verb inflections and syntactic competence. English is a non-null subject language, so subjects have to be overtly present in a sentence. A subject-less sentence results in ungrammaticality in English. However, it has been observed that during the RI stage, the frequent omission of verb inflections co-occurs with the frequent omission of subjects in English native-speaker children (e.g., *__ *like chocolate*). Once the RI stage passes, the child consistently produces verb inflections together with consistent use of overt subjects (e.g., *She likes chocolate*.), the licensing of null subjects is no longer allowed in a child's grammar. A detailed account of the three syntactic properties is given in Chapter 2.

The above illustration of the correlation between the occurrence of verb inflections and overt subjects during the RI stage suggests a dependent relationship between the acquisition of verb inflections and syntactic properties. Studies on the acquisition of verb inflections with

syntactic consequences in child L1 have focused on the triggering relationship between the acquisition of the morphological paradigm and syntactic competence and the presence of the functional category [Infl] with associated features (i.e., tense and agreement) in early grammar. One account claims that the functional category [Infl] is represented from the beginning, and it is claimed that syntax triggers the acquisition of morphology (e.g., Borer & Rohrbacher, 1997; Hoekstra, & Hyams, 1998; Lardiere, 2000; Rizzi, 1994/1994). An opposing account argues that the functional category [Infl] is absent in a child' early grammar and that morphology triggers the acquisition of syntax (e.g., Clashen, & Hong, 1995; Radford, 1990; Rohrbacher, 1999).

The same topics have also been further studied in child and adult L2 acquisition. In addition, researchers have set out to find out whether the lack of verb inflections implies that the functional category [Infl] and associated features are represented in L2 grammar. With the presence of learner's native language knowledge, the underlying representation of L2 grammar has been debated. There are two opposing views regarding the inconsistent use of verb inflections by L2 learners. One group of researchers has argued that the functional category [Infl] and features are impaired in L2 grammar. This incomplete syntactic representation causes temporary or permanent inconsistent use of verb inflections in child or adult L2 leaners (e.g., Eubank, 1993/1994; Meisel, 1997; Beck, 1998). Nevertheless, Prévost and White (2000) claim that the L2 grammar is complete, and the omission of verb inflections results from a problem in mapping abstract features to surface forms. Prévost and White argue that if the omission of verb inflections results from an incomplete syntactic representation, then errors in the use of verb inflections, for example the use of agreement *–s* with persons other than the third (e.g., **I likes chocolate)* would occur often. However, the misuse of tense and agreement morphology has

been found to be rather rarer than the omission of tense and agreement morphology by child and adult L2 learners (e.g., Haznedar, 2001; Lardiere, 1998; White, 2000).

In sum, the above discussion shows that child L1, child L2 and adult L2 learners are characterized by the inconsistent use of verb inflections. The current study is intended as an investigation of the acquisition of verb inflections by child L2 learners. Child L2 learners are known as successive bilinguals who have acquired the fundamentals of their L1, while being exposed to an L2 between the ages of 4 and 8 (Schwartz, 2004). Child L2 learners are like adult L2 learners, in that they both have acquired their native languages, yet they differ in the age of onset in L2 acquisition. On the other hand, child L2 acquisition is like child L1 acquisition, in that they both have access to UG, while child L2 learners have knowledge of another language. Child L2 learners share characteristics of both the L1 child (i.e., early start and UG-governed) and adult L2 learners (i.e., presence of native language knowledge). The inquiry into early child L2 learners, for whom both L1 and L2 are developing, may shed light on our understanding of interlanguage grammars, and the influence of native language knowledge on L2 acquisition. I contribute to the ongoing debate over the acquisition of morphology and syntax by comparing child L2 learners in this study with monolingual children and adult L2 learners as examined in the literature.

The phenomenon of the inconsistent use of verb inflections in L2 acquisition has been extensively studied in both adult L2 learners (e.g., Lakshmanan, 1991; Lardiere, 1998; Muller, 1998; Prévost, 1997; Prévost & White, 1999/2000; Rasetti, 1999; White, 2003; Zobl & Liceras, 1994) and child L2 learners (e.g., Gavruseva & Lardiere, 1996; Gavruseva, 2002; Grondin & White, 1996; Haznedar, 1997/2001; Ionin & Wexler, 2002; Lakshmanan, 2000). However, most of the studies were conducted on L2 learners whose native languages have rich morphology,

such as Russian and Turkish. Only a few studies have been done with L2 learners with impoverished morphology in L1, such as Chinese, Korean, and Japanese. To find out whether L1 transfer plays a role on the acquisition of verb inflections, this study seeks to contribute to the acquisition of verb inflections by child L2 with impoverished morphology in L1. The present work examined the acquisition of English verb inflections and syntactic properties by Chinese child L2 learners of English in an early stage of language acquisition. Chinese is well known for having impoverished inflectional morphology. Verbs are not inflected for tense or agreement features, and nouns are not inflected for number. The differences in the realization of tense and agreement features between Chinese and English may present difficulties to Chinese L2 learners of English.

In the following section, I present a brief description of the theory of Universal Grammar in language acquisition. The principles and parameters define common properties shared by human language as well as distinctive properties among languages. In particular, parametric variations in the presence of abstract functional categories, features, and feature values among languages, all of which cause difficulties in learning L2 are explored. As participants in the present study were Chinese child L2 learners of English, I will discuss the differences in the realization of tense and agreement features, and related syntactic properties in English and Chinese to see the potential influence of L1.

1.1 Universal Grammar in Language Acquisition

The Universal Grammar (UG) approach attempts to characterize underlying linguistic knowledge in learners' minds. Chomsky (1965) proposed an innate template of properties, namely, the principles and parameters that constrain human language. Principles are common to

all languages, whereas parameters encompass a limited number of differences between languages. An example of a universal principle is structure-dependency, which states that language construction essentially depends on the structural relationships between elements in a sentence, for example, the formation of question:

(1) a. The girl who is sitting over there is happy.

b. Is the girl who is sitting over there _____ happy?

c. Is the girl who _____ sitting over there is happy?

The structure-dependency principle explains that questions are formed by moving the main verb to the front of the sentence, as in (1b), not by moving the first verb in the sentence to the front, as in (1c). The structure-dependency principle accounts for what makes sentence grammatical or ungrammatical, and seems to be universal among languages. This set of universal principles does not need to be learned, and therefore it simplifies the task of language acquisition for young children. However, languages also contain a set of parametric variations that vary from language to language. Parametric variations between one's native language and L2 may lead to difficulties in the process of language acquisition for L2 learners.

One of the parametric variations related to the verb form and syntactic representation is the null subject parameter. Languages differ as to whether finite verbs (i.e., verbs that are inflected for tense) can have a null subject (i.e., a subject is not overtly presented). In null subject languages, such as Italian and Spanish, subjects can take either overt or covert form with finite verbs. Examples of overt and covert subjects with finite verbs are illustrated in Spanish in the following sentences (2). In sentence (2a), the subject is not overtly presented, and takes covert

form with the finite verb *come.* Sentence (2a) can be interpreted as sentence (2b) with an overt subject, e*l* or e*lla*.

(2) a. Come como una bestia.
eats like a beast

b. El (ella) come como una bestia.
He (she) eats like a beast

In contrast, English is a non-null subject language, so subjects have to be overtly presented with finite verbs. Accordingly, sentence (2a) with a covert subject is considered ungrammatical in English. The use of the null subject with finite verbs is grammatical in a null subject language, such as, Spanish, while it leads to ungrammaticality in English, a non-null subject language. Due to the null subject parametric variation between these two languages, it is expected that Spanish learners of English may go through a stage of using the null subjects with finite verbs, which causes them to be ungrammatical in English. White (1985) investigated the null subject parameter in Spanish adult L2 learners of English, and made such predictions. Results show that Spanish native speakers did accept many English sentences with null subjects as grammatical. White claims that Spanish L2 learners of English carry parameters over from L1 to L2. Parametric variations among languages, such as the null subject parameter, can lead to ungrammaticality in transferring the L1 parameter to L2.

In addition to the framework of principles and parameters, Chomsky also proposed that the core constituent of human language is the lexicon consisting of lexical categories and functional categories. Lexical categories are content words, such as verb (V), noun (N), adjective

(A), and preposition (P), all of which carry a specific meaning. Functional categories are grammatical words, such as D(eterminer) (e.g., *a, the, my, first,* etc.), C(omplementizer) (e.g., *that, whether*), and I(nflection) (e.g., agreement *–s* or past tense *–ed* in English), which carry grammatical function and information about person, gender, or tense (i.e., features) within a sentence. Both the lexical and the functional categories have phrases attached to them. In linguistic theory, the underlying syntactic representation is the projection of phrase structures such as Verb Phrases (VP), Noun Phrases (NP), Complementizer Phrases (CP), and Inflection Phrases (IP).

This study deals primarily with the functional category [Infl]. The inflectional phrase (IP), consisting of Tense Phrase (TP) and Agreement Phrase (AP), carries tense and agreement markings, for example past tense *–ed* and the third-person singular *–s* in English. Recall that earlier I mentioned two accounts of the relationship between the acquisition of verb inflections and syntactic competence. One account claims that morphology is the prerequisite condition for the projection of associated functional categories. Omission of verb inflections (i.e., *-s* and *-ed*) results from the absence of the functional category [Infl] (e.g., Clahsen & Hong, 1995; Radford, 1990; Rohrbacher, 1999). The other account claims an independent relationship between morphology and syntax. Functional category [Infl] can be represented in the underlying representation even in lack of overt morphology in surface structure (e.g., Haznedar, 2001; Ionin & Wexler, 2002; Lardiere, 2000). The two accounts have opposing views with regard to the indication of omission of verb morphology, while they do point out a triggering relationship between the functional projection of [Infl] and the morphosyntactic properties of tense and agreement. The parametric variations in functional categories, features, and feature values are addressed next.

1.1.1 Parametric Variations in Functional Categories, Features, and Feature Values

The above illustration of the null subject parameter is one of the parametric variations among languages. In the theory of UG, functional categories, associated features, and feature values are the main sources of parametric variations among languages. According to White (2003), there are three sources of parametric variations among languages in functional categories, associated features, and feature values:

a. Languages can differ as to which functional category is present in underlying syntactic representation.
b. Features of a particular functional category can vary from language to language; for example, Spanish has a grammatical gender feature, while English does not.
c. Feature values can be either weak or strong with syntactic consequences. For example, in French, the verb feature of [Infl] is strong, whereas it is weak in English.

Here I briefly exemplify each of them. First, parametric variation is located within functional categories. For example, Chinese does not have the category [Tense], while English does. In English, verbs are inflected for tense (e.g., past tense *-ed*), whereas in Chinese, verbs are not inflected for tense, and express time with temporal adverbs (e.g., 昨天 'yesterday'). Likewise, Japanese does not possess the functional category [Det], while English does. Due to the parametric variation in the presence of functional category, it has been observed that Chinese L2 learners of English frequently omit tense marking *–ed* (e.g., Gavruseva, 2002; Lardiere, 1998; Prevost & White, 2000), and Japanese L2 learners of English frequently omit articles in speech production (e.g., Huebner, 1985; Parrish, 1987; Thomas, 1989).

Second, parametric variation is located within features. In Romance languages, such as Spanish and French, nouns are inflected for grammatical genders (i.e., masculine and feminine). In languages, such as English, which lacks the gender feature, nouns are not inflected. Differences in the presence of this feature between these two languages may lead to difficulties for English L2 learners of Spanish or French in assigning gender features.

Finally, parametric variation is located within feature values. Let me illustrate the parametric variation for feature value within the functional category [Infl]. In English, the functional category [Infl] contains tense and agreement features, and is realized through the morphological paradigm to surface forms [-*ed*] and [-*s*]. The feature values can be strong or weak with the syntactic consequence of verb movement. In French, the V-feature in [Infl] is strong. A strong V-feature drives an overt movement of the verb (i.e., both lexical and auxiliary verbs) from VP to I, passing the adverb, *souvent*, to gather the grammatical information via the feature-checking mechanism, as shown in sentence (3b). In English, the V-feature in [Infl] is weak. A weak V-feature does not drive the verb to undergo movement, so the verb (i.e., lexical verbs) remains in the VP, and does not pass the adverb, *often*, as shown in (3a). As shown in Figure 1, variations in the feature strength between English and French cause the movement of finite verbs in the underlying syntactic representation, and lead to difference in surface word order between French (i.e., Sbj**.**-V.-Adv.-O.) and English (i.e., Sbj**.**-Adv.-V.-O.).

(3) a. John often reads books. (English)
S A V O

b. John lit souvent livre. (French)

S V A O

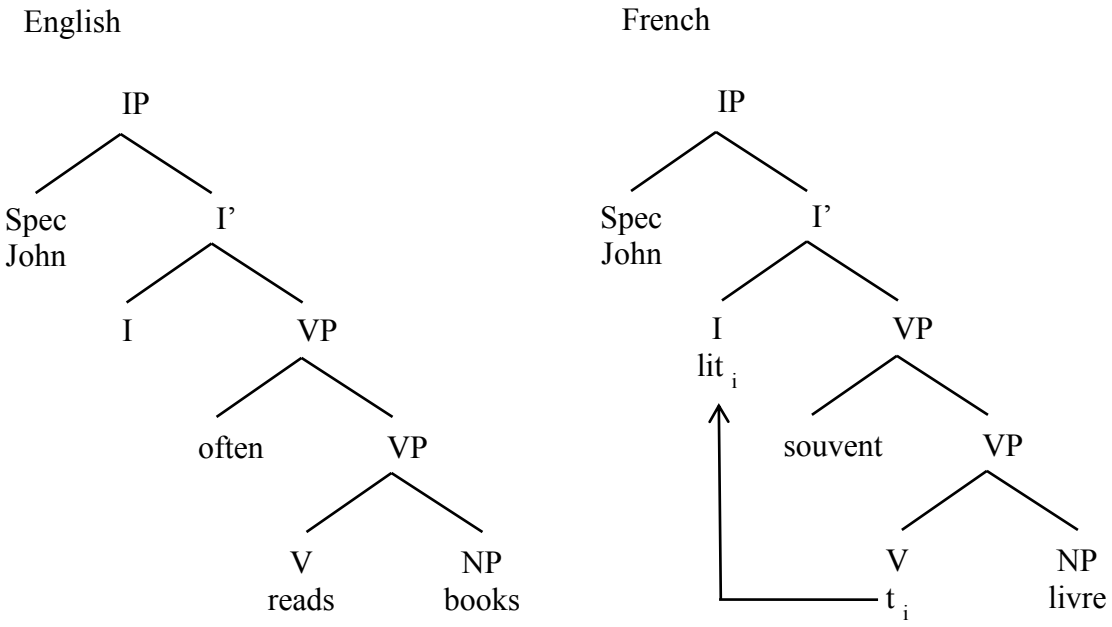

Figure 1. Verb movement in English and French

As is evident, parametric variations in the functional categories, features, or feature values may lead to difficulties in resetting parameters that are different from leaners' native languages. Due to parametric variations in feature values, French L2 learners of English have to reset the parameter to be weak, while English L2 learners of French have to reset the parameter to be strong. Likewise, when learning English as L2, Japanese native speakers may often omit determiners, as Japanese does not have the functional category [Det].

1.1.2 Abstract Feature versus Surface Form

In addition to variations in the functional categories, features, and feature strength, languages also differ in how abstract features are realized or spelled out to their surface forms. In other words, languages can share abstract features, while differing in the way in which those

abstract properties are realized to surface forms. UG theory does not specify how abstract features need to have any type of surface form.

As Lardiere (2000) pointed out, there is a need to differentiate between the use of null morphemes and the absence of morphemes. Null morphemes are cases in which the abstract feature is present, while it is not overtly realized to the surface structure. For example, the English agreement feature is realized morphologically, the third-person singular *-s*. Nevertheless, the agreement feature is not marked morphologically on verbs except for the third-person singular pronoun. Likewise, English tense is realized morphologically, regular past tense *–ed*, whereas there are cases in which the past tense is simply not marked, for example, past irregular forms (e.g., *eat/ate, come/came*) or verbs without explicit marking for past (e.g., *hit/hit, set/set*). Moreover, in a sentence such as *I like chocolate,* although the agreement feature is not overtly realized, the verb 'like' still carries features for person (first), number (singular), and tense (present). These abstract features are covertly present.

In contrast, the absence of morpheme is an instance in which the abstract feature is simply not present in the underlying syntactic representation. For example, Spanish has a gender feature, while English does not. English has tense and agreement features, whereas Chinese lacks both. Table 1 shows the difference between null morphemes and the absence of morphemes.

Table 1

Difference between Null Morphemes and Absence of Morphemes

Null morphemes	Absence of morphemes
English agreement feature	Absence of agreement feature in Chinese
I like chocolate.	她-喜歡-巧克力 she-like-chocolate
person (first), number (singular), tense (present)	'She likes chocolate'

It has been widely observed that L2 learners frequently omit verb inflections in speech production. A body of L2 research suggests that the omission of verb inflections is indicative of the absence of features in underlying representation, while overlooking other evidence for the presence of abstract properties. The indication of omission of verb inflections by L2 learners may require examining from both morphological and syntactic evidence, when the omission of verb inflections is claimed as the case of absence of abstract properties, or the case of null morphemes.

This study investigates the acquisition of English tense and agreement by Chinese child L2 learners of English. It is well known that Chinese has an impoverished system in morphology (i.e., the case of absence of morphemes), while English verbs are required to be morphologically marked for tense and agreement. In the next section, I briefly present differences between Chinese and English in the realization of tense and agreement features in order to discern the potential influence of L1.

1.2 Tense and Agreement in English and Chinese

English morphological markings include both affixal inflections (i.e., bound forms), such as the third-person singular *–s* and the regular past tense *–ed,* and suppletive inflections (i.e., unbound forms), such as the copula/auxiliary *be*. The marking [*–s*] is inflected for both person and tense (4a). The marking [*-ed*] is inflected for tense (4b). The copula *be* and auxiliary *be* are inflected for person and number (4c-4f). Examples of abstract features and their surface forms are as follows:

(4) a. Steve takes bus to school every day. → third-person singular; present tense

b. Steve played piano this morning. → third person; past tense

c. Steve is a student. → third person singular copula

d. Steve and Theresa are students. → third person plural copula

e. Steve is playing tennis. → third person singular auxiliary

f. Steven and Theresa are playing tennis. → third person plural auxiliary

The inflectional category [Infl] consists of tense and agreement features, which are morphologically realized: the past tense *–ed* and the third-person singular *–s* in English. When the functional head [I] of the IP is checked as [+finite], the verb undergoes covert movement to the upper level to gather the tense or agreement feature via the feature-checking mechanism (i.e., to check tense, person, or number features). Figure 2 is an illustration of how the sentence '*she likes/liked chocolate'* is generated via the phrase structure rule. The verb *like* is the head of the maximal projection of VP. As the [I] is checked as [+finite], the verb *like* has to move covertly to IP to gather the tense or agreement features.

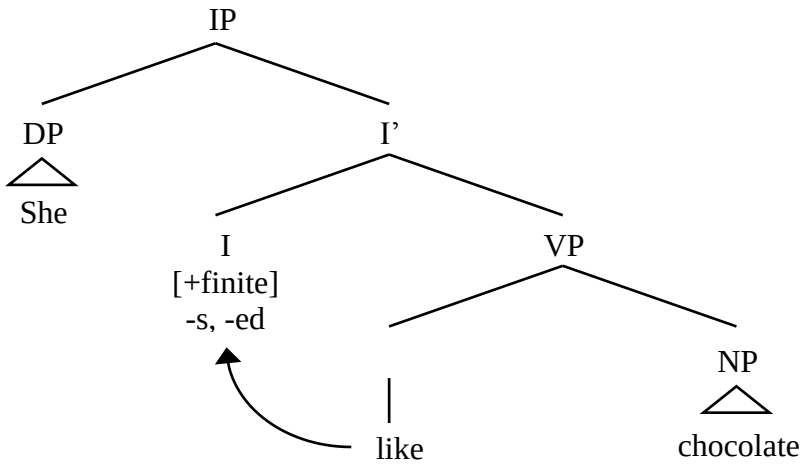

Figure 2. Generation of phrase structure

In contrast, Chinese has an impoverished morphology, and verbs are *neve*r inflected for tense and agreement features. There is no overt reflection of agreement and tense features. With regard to the phenomenon, studies have suggested that Chinese is a tenseless language, as verbs are not inflected for overt tense markers. Chinese does not have [TP] and possibly has an empty [T] node in its underlying representation (e.g., Huang, 1998; Li, 1990/1993). Figure 3 shows the general phrase structure trees in English and Chinese.

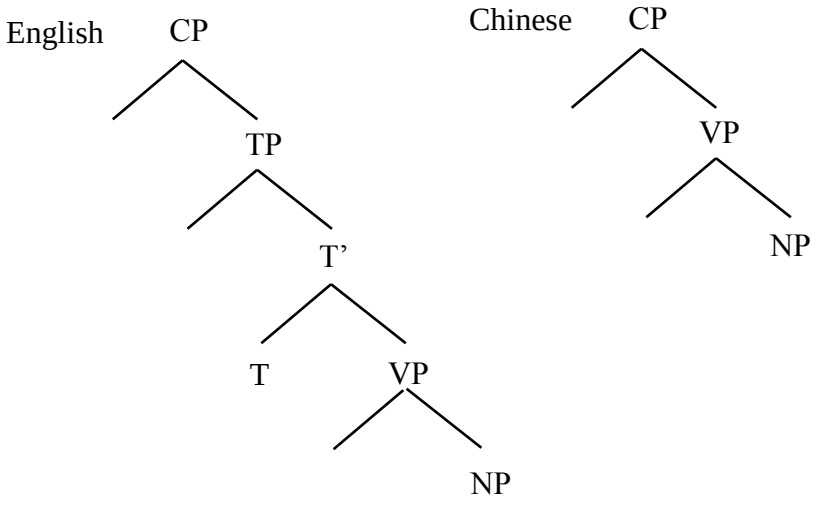

Figure 3. Phrasal structure in English and Chinese

Unlike the temporal interpretation in English, which is realized morphologically, Chinese native speakers rely on contextual information, such as temporal adverbs (e.g., 昨天 'yesterday,' 過去 'past,' and 現在 'present'), and modal verbs (e.g., 將 'will,' 或許 'might'). Examples are given in (5).

(5) a. 她-過去-是-個-芭蕾舞者 (Sbj.-temporal adv. past- to be-indefinite article-ballet dancer)
'She used to be a ballet dancer.'

b. 她-現在-住-在-舊金山 (Sbj.-temporal adv. present-verb-prep.-location)
'She lives in San Francisco.'

c. 她-或許-會來 (Sbj.-modal v. might-come)
'She might come.'

It is clear that temporal adverbs play a role in the temporal interpretation of a sentence in Chinese. Nevertheless, temporal adverbs are not obligatory. There are many circumstances in which a sentence lacks a temporal adverb, while interlocutors are still able to figure out the temporal interpretation. Sentence (6a) is interpreted as a present tense sentence, and (6b) has a past tense interpretation. Temporal adverbs are not used in either sentence.

(6) a. 她-想-當-個-芭蕾舞者。
She-want-be-a-ballet dancer
'She wants to be a ballet dancer.'

b. 她-去-巴黎-學-芭蕾舞。
She-went-Paris-learn-ballet
'She went to Paris to learn ballet'

With regard to the agreement feature, verbs are inflected in English for the agreement feature, which is morphologically realized as '*–s'* with third-person singular subjects. However, in Chinese, there is no overt reflection of the agreement feature, and verbs are not inflected for person. Unlike English, Chinese verbs are not inflected to show first person '我,' second person '你,' and third person singular '他,' and remain in the same form. An example of the verb, *like* with the first, second, and third person in Chinese and English is shown in Table 2.

Table 2

Verb Inflections with Person in Chinese and English

Person singular	Chinese	English
first person I	喜歡 'like'	like
second person You	喜歡 'like'	like
third person S/he	喜歡 'like'	likes

As can be seen, the realization of tense and agreement features is different between Chinese and English. In English, verbs are inflected for tense and agreement. Chinese has an impoverished system of morphology, and verbs are not inflected to show those features. Temporal interpretation is determined by contextual information, such as temporal adverbs, and the verb remains the same with first, second, and third person.

In sum, in contrast to English, Chinese does not have overt reflection of tense and agreement features. Differences in how abstract properties are realized into their surface forms between Chinese and English may cause difficulties among Chinese native speakers in acquiring English tense and agreement. The current study investigates the acquisition of tense and

agreement morphology by Chinese child L2 learners of English to discern the role of L1 on language acquisition. The objectives of the study are presented next.

1.3 Objectives of the Present Study

In past decades, the acquisition of tense and agreement morphology and their relation to syntactic competence has been a subject of extensive study in child L1, child L2 and adult L2 acquisition. This study contributes to the ongoing debate by analyzing data from six Chinese child L2 learners of English in an early stage of language acquisition. The objectives of the study are twofold. First, I observe the development of verb inflections and syntactic competence over time from an early stage by children of Chinese native speakers and examine the potential influence of L1. As mentioned in section 1.2, Chinese has no overt reflection of tense and agreement features, and possibly has no functional projection of [TP]. In contrast, English has tense and agreement features, which are morphologically realized, and has the functional projection of [TP]. This difference in the underlying representation may lead to difficulties for Chinese native speakers in acquiring English tense and agreement. Much of the research investigates the acquisition of verb inflections by child and adult L2 learners whose L1 has rich morphology. Only few studies have been conducted with L2 learners whose L1 has impoverished morphology, for example, Chinese.

The second objective is to determine the similarities and differences in the acquisition of verb inflections with syntactic consequences among child L1, child L2, and adult L2 acquisition. Findings from the current study on child L2 learners will be compared with the observed phenomena in child L1 and adult L2 acquisition from the literature in this field. Child L2 learners are known as successive bilinguals who have acquired the fundamentals of their L1 and

have been exposed to L2 between the ages of 4 and 8 (Schwartz, 2004). Child L2 learners are like adult L2 learners, in that they have acquired their native languages, yet they differ in the age of onset of L2 acquisition. On the other hand, child L2 acquisition is like child L1 acquisition, in that both populations have access to UG, while child L2 learners have knowledge of another language. As illustrated in Table 3, child L2 learners share characteristics of both the monolingual children (i.e., early start and UG-governed) and adult L2 learners (i.e., presence of native language knowledge). The inquiry into early child L2 learners, for whom both L1 and L2 are developing, may shed light on our understanding of interlanguage grammars, and the influence of native language knowledge on L2 acquisition

Table 3

General Features of Different Types of Acquisition

Child L1	Child L2	Adult L2
Early start & UG-governed	Early start & UG-governed	
	Native language knowledge	Native language knowledge

This study examines the relationship between the acquisition of verb inflections and syntactic properties by child L2 learners and further compares with child L1 and adult L2 learners from the literature to determine the similarities and differences among the three types of acquisition. Participants in this study included six Chinese-L1 English-L2 learners with ages between 7 and 9 and the length of residence in the United States between four and six months. Data were collected regularly over a period of seven months. One session of 40 minutes data collection per month was held with each individual participant. Tasks included a conversation

with the investigator for general topics such as favorite books or school life, and an elicitation task via picture description was carried out. Speech production samples were audio-recorded and later transcribed to analyze the use of tense-related morphology: the third-person singular *-s*, regular past tense *-ed*, auxiliary *be* and copula *be*, and the use of related syntactic properties: the use of overt subjects, and the case of pronoun subjects.

1.4 Organization of Dissertation

Chapter 2 is the review of our current understanding of the acquisition of morphological paradigms in child L1 acquisition. To demonstrate the relationship between the acquisition of verb inflections and syntactic properties, I first address the Root Infinitives phenomenon (Rizzi, 1993) which has been observed in monolingual child with different L1 backgrounds. Chapter 3 presents the acquisition of morphology in L2 acquisition. I review various hypotheses with regard to the constituents of L2 initial-state grammar, and the opposing views of the omission of verb inflections in L2 acquisition. Then I present previous studies on the acquisition of morphology and syntax in adult and child L2 learners. Chapter 4 is the presentation of this study. The overview of the methodology includes the background of participants, the procedures of data collection, and the transcription and the coding process. The results show the suppliance of target morphemes and related syntactic properties by the six Chinese child L2 learners. Chapter 5 concludes with discussions, the implications of the findings, and suggestions for future study.

CHAPTER 2

MORPHOLOGY IN FIRST LANGUAGE ACQUISITION

2.0 Introduction

Brown (1973) conducted a longitudinal study on the development of grammatical morphemes in the preschool years of three English native-speaker children, Adam, Sarah, and Eve. The three children were all beginning to speak multi-word utterances at the time of data collection. Results of the spontaneous speech of the three children showed a strikingly similar sequence in the acquisition of 14 grammatical morphemes, although the three children did not learn the morphemes at the same rate. Table 4 shows the order of acquisition of a subset of these morphemes.

Table 4

Developmental Sequences in L1 Acquisition

	Acquisition order	Example
1.	Present Progressive *–ing*	Boy singing
2.	Plural *–s*	Two books
3.	Past Irregular	Broke
4.	Possessive *'s*	Baby's biscuit
5.	Articles 'a, the'	A book
6.	Past Regular *–ed*	She wanted
7.	Third person singular *–s*	She eats
8.	Auxiliary *be*	He is running

Berko (1958) created the well-known *wug* test to examine young children's knowledge of grammatical morphemes. In this task, children (ages between 4 and 7) were first shown a picture

with a new kind of animal and told, “This was a *wug*,” and next they were shown a picture with two of the animals and were asked, “T*here are two* ___.” Berko reported that these children were able to form plural forms and answered, “two *wugs*,” despite the fact that those were pseudo words. The test shows that children were able to apply the rule to a new context, and had knowledge of the grammatical morphemes.

The two studies of Brown (1973) and Berko (1958) suggest that children go through developmental stages in the acquisition of grammatical morphemes, and that they have knowledge of inflections. Systematicity characterizes language acquisition in early childhood. Likewise, studies on the acquisition of verb inflections by monolingual children with different L1 backgrounds have shown a correlation between the use of verb forms and the use of related syntactic properties. This developmental phenomenon, which has been widely observed in the speech production of young children, refers to the Root Infinitive (RI) stage (Rizzi, 1993/1994) in L1 acquisition in early childhood.

2.1 Properties of the Root Infinitives Stage

Studies of L1 acquisition in early childhood have shown that children learning a wide range of languages typically produce nonfinite verbs in main declarative clauses in cases that no adult grammars allow. The developmental phenomenon in child L1 acquisition, known as the Root Infinitives (RI) (Rizzi, 1993) stage, occurs around the ages of two and until about the middle of the third year of life. Some examples of use of nonfinite verbs in L1 English, Dutch, German, and French are given in (7).

(7) a. Papa have it.

(English; Legate & Yang, 2007)

b. thee drinken.
tea drink-nonfinite
(Dutch; Legate & Yang, 2007)

c. mein Kakao hinstelln.
my cocoa put-nonfinite
(German; Legate & Yang, 2007)

d. voir l'auto papa
see the car daddy
(French; Wexler, 1994)

In addition to high frequency in the production of the nonfinite forms in root clauses, children's utterances during the RI stage is sometimes finite (i.e., a verb is inflected to show features, such as person, number, or tense) and sometimes nonfinite (i.e., a verb remains in its root form). The use of verb form is thus rather inconsistent in the early stage. Moreover, studies have suggested that the use of the verb forms is correlated with the use of certain syntactic properties: the licensing of null subjects in non-null subject languages (e.g., English, French, and German), the assignment of the nominative case, and verb movement in verb-raising languages. The positive correlation between the use of verb forms with syntactic consequences suggests that the properties of the RI stage are structurally determined. In the next section, I present the developmental patterns in the RI stage and address the relationship between the use of verb forms with three syntactic properties.

2.1.1 Licensing of Null Subjects

As mentioned in Section 1.1, languages differ as to whether finite verbs (i.e., verbs that are inflected for tense) can have a null subject (i.e. the subject is not overtly presented). English is a [- null subject] language, so subjects must be overtly expressed, as shown in sentence (8a). The licensing of a null subject, as in sentence (8b), results in ungrammaticality in English. In contrast, Chinese is a [+ null subject] language, so subjects are not required to be overtly present, instead taking the form of an empty category, *pro,* in the surface structure. The licensing of null subjects does not entail ungrammaticality in Chinese. As sentence (8c) illustrates, the subject *I* can take a covert form. Depending on context cues, interlocutors are still able to understand that it is *I* who feel like chocolate.

(8) a. I feel like chocolate.

b. *__ feel like chocolate.

c. (我) 想吃 巧克力

‘(I) feel like chocolate.’

Studies have shown that during the RI stage, the presence of verb forms is correlated with the licensing of null subjects in non-null subject languages (e.g., English, French, Italian, and German) (Crisma, 1992; Haegeman, 1995; Phillips, 1996; Valian, 1991). For instance, early speech of English children exhibits the use of nonfinite forms with the licensing of null subjects, as illustrated in sentence (9a). Once English children go through the RI stage, the finite verb is appropriately produced and the licensing of null subjects is no longer allowed in a child’s grammar. The use of finite verbs co-occurs with the use of overt subjects, as shown in sentence

(9b). The gradual appearance of finite verbs is, accordingly, claimed to be facilitated by the development of syntactic competence.

(9) a. *__ feel like chocolate.

b. She feels like chocolate.

2.1.2 Nominative Case Assignment

Another syntactic property occurring during the RI stage is the assignment of the pronoun subject case. Children's production of verb forms is correlated with the case assignment of pronoun subjects. During the RI stage, when nonfinite verbs are used, pronoun subjects are assigned a default case – an accusative case (i.e., *him* or *her*), as shown in sentence (10a). Once children pass the RI stage, finite verbs are used, and pronoun subjects are appropriately assigned a nominative case (i.e., *he* or *she*), as shown in (10b). The nominative case assignment of pronoun subjects is positively correlated with the use of finite verbs (e.g., Powers, 1994; Rispoli, 1994; Vainikka, 1994; Valian, 1991).

(10) a. *Her like chocolate.

b. She likes chocolate.

The case assignment of pronoun subjects is done through the feature-checking mechanism. As Figure 4 shows, the functional category [Infl] includes [±finite] features. If [Infl] is checked as [+finite], a nominative case, *she*, will be assigned to the subject pronoun position. On the contrary, if [Infl] is checked as [-finite], because nonfinite verbs do not raise, a

nominative case cannot be assigned to the subject pronoun position. In this case, a default form - the accusative case, *her*, is assigned to the subject pronoun position.

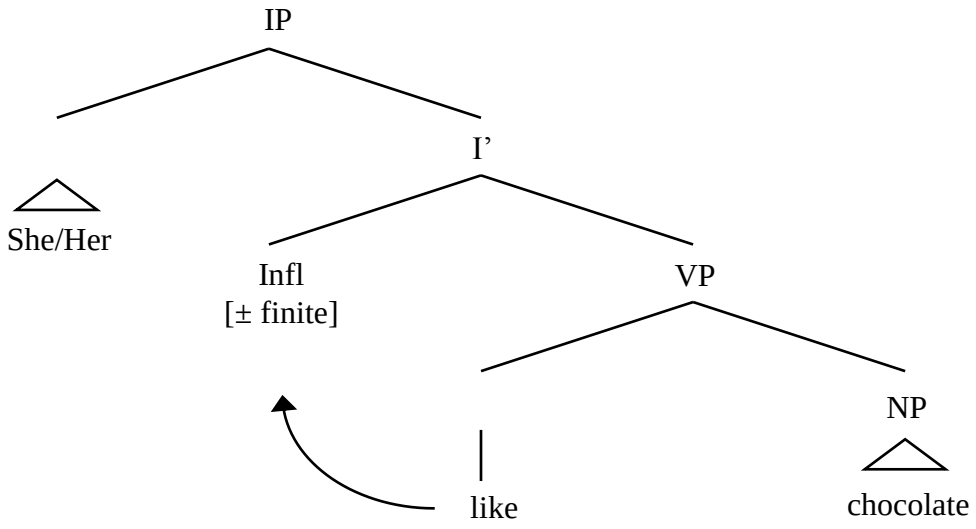

Figure 4. Case assignment of pronoun subjects

2.1.3 Verb Movement

Children's production of verb forms during the RI stage is also correlated to the verb position in verb-raising languages, such as French. In section 1.1.1, I have mentioned that in French, a finite verb has to pass the adverb, *souvent*, as a result of the strong V- feature. In contrast, English has weak V-feature, so verbs remain in the same place without movement, regardless of finite or nonfinite forms. Variations in the V-features lead to a different surface word order among languages. The computation of verb movement in verb-raising languages, such as French is demonstrated in Figure 5. The illustration is given in English for better understanding.

In French, finite verbs have to move to precede negation, *pas* showing the surface word order as *Sbj.-finiteV.-Neg.-O*. (e.g., she *likes not* chocolate), while nonfinite verbs do not move past the negation *pas*, showing the surface word order as *Sbj.-Neg.-nonfiniteV.-O*. (e.g., she *not like* chocolate). In other words, finite verbs are required to be in the raised position, while nonfinite verbs remain in the VP and do not move. It has been observed that during the RI stage, when nonfinite verbs are used, they are found in the VP in the non-raised position (i.e., verbs do not move past the negation), which is a true nonfinite form, as shown in Figure (5a). Once children go through the RI stage, when finite verbs are used, they move from V to I in the raised position, which is a true finite form, as illustrated in Figure (5b) (e.g., Pollock, 1989; Rizzi, 1993; Wexler, 1994). The property of verb movement in early speech production suggests that children's use of nonfinite verbs reflects true nonfinite forms, which is not the case of the absence of verb inflections.

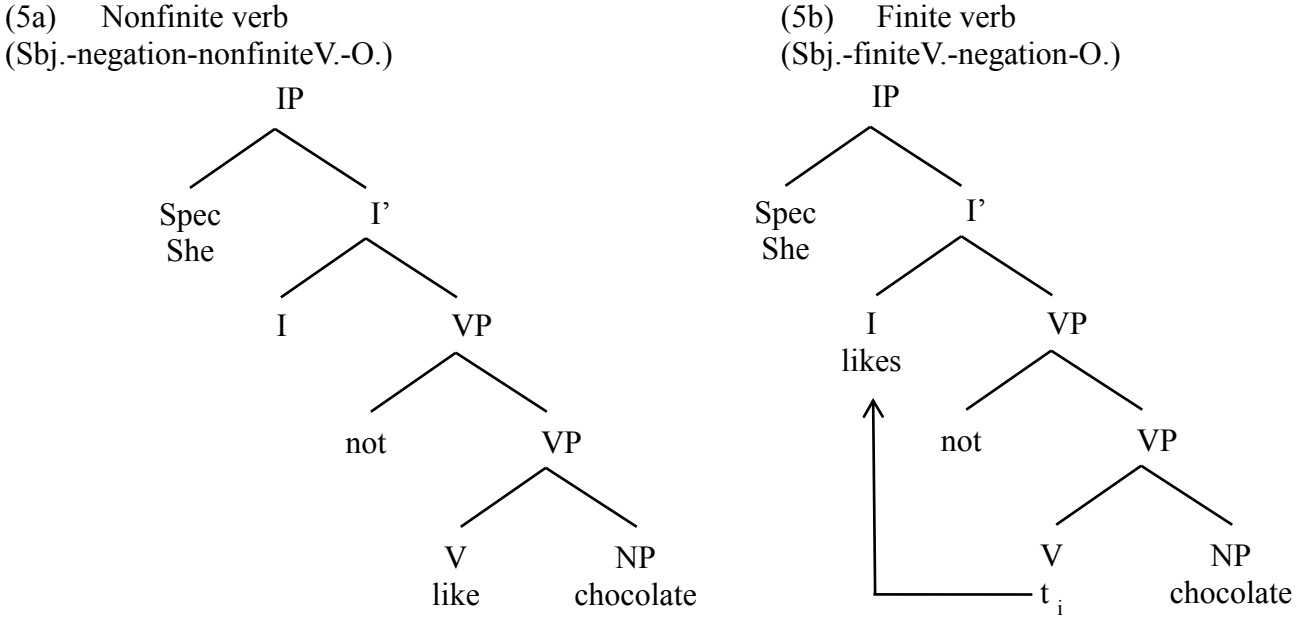

Figure 5. Verb movement in French

2.2 Relationship between Morphology and Syntax

The contingency between the use of verb forms and the syntactic properties, the licensing of null subjects, the case assignment of pronoun subjects, and verb movement suggest that the properties of the RI stage are structurally determined, and are not therefore a coincidence. Accordingly, the RI phenomenon has raised questions as to the presence of functional categories in children's early grammar, and the triggering relationship between the acquisition of morphology and syntax. Functional categories with associated features are related to morpho-syntactic properties such as tense and agreement. In the next section, I will address two accounts of the triggering relationship between the acquisition of morphology and syntax. One account claims that syntax triggers the acquisition of morphology, while the other claims that the acquisition of morphology is the prerequisite of the functional projections, and thus morphology is claimed to trigger the acquisition of syntax.

2.2.1 Syntax before Morphology

The account of syntax-before-morphology proposes that functional categories with associated features are present in a child's early grammar. It is claimed that syntax triggers the acquisition of morphology (e.g., Beard, 1995; Borer & Rohrbacher, 1997; Lardiere, 2000). Researchers along this line have adopted the Separation Hypothesis, claiming that functional categories can be represented in the absence of overt morphology.

One type of evidence these researchers use in support of such a claim is the properties of the RI stage which are exhibited in the early speech production of monolingual children. As discussed in section 2.1, the use of verb forms in a child's early speech production is associated with syntactic consequences. The use of finite verbs co-occurs with the use of overt subjects,

nominative case assignment of pronoun subjects, and verb movement. The feature-checking mechanism is involved in the computation of these three syntactic properties. In other words, the use of overt subjects, nominative case assignment of pronoun subjects, and verb movement imply that functional categories are already in place. The absence of overt morphology therefore does not indicate an absence of abstract features. The presence of functional categories with features in the underlying syntactic representation enables children to discover the manifestation of overt morphology. As Borer and Rohrbacher (1997) pointed out, the absence of functional features in the early stages might actually support the existence of functional categories in the underlying representation. The optional use of finite and nonfinite forms may be due to the fact that children have not fully acquired the morphological paradigm, and thus have avoided using inappropriate or mismatched finite forms. This prevents the feature-checking mechanism from crashing during the process of syntactic derivation. As Borer and Rohrbacher (1997) claimed, if functional categories and features are absent, random or mismatched inflectional markings should be observed frequently in children's early speech.

At the same time, the use of verb forms with syntactic consequences in children's early speech productions suggests that RI properties are structurally determined. When children use nonfinite forms in place of finite forms, these are indeed syntactically nonfinite. For instance, in the verb-raising language, French, the nonfinite verb does not raise past negative *pas*. When finite verbs are used, they are found in place of finite form (i.e., in the raised position). Therefore, it is claimed that RI properties are syntactically finite, and the nonfinite verb is used as a default form, as it fails to move to combine with its inflection (Phillips, 1996). The syntactic representation of functional categories would thus appear to be present in the children's early grammar. Furthermore, when finite verbs are used, they tend to be used correctly. A mismatch

between form and feature is rarely found. If functional categories with associated features are absent, errors in the use of verb forms are expected to occur more often.

During the RI stage, children tend to produce nonfinite verbs in root declarative clauses in cases that no adult grammars allow. With regard to this phenomenon, Rizzi (1993) has proposed the Truncation Hypothesis, claiming that the representation of clausal structures may be truncated at any category below the Complementizer phrase (CP), such as root IPs or root VPs, as shown in Figure 6. In syntactic representations, phrases are held together by a CP, and the complementizer projects high level phrases that take IP as the complement. In contrast to adult grammar, in which roots are normally CPs, there is no restriction for what can be projected as the root in child language acquisition. Root infinitives are considered as the consequence of grammatical truncation. Therefore, if a starting point of syntactic representation is a category lower than IP, then it predicts the use of a nonfinite verb in root declarative clauses. Though children's early syntactic representation may be truncated, functional categories with their associated features can be represented as in the adult grammar.

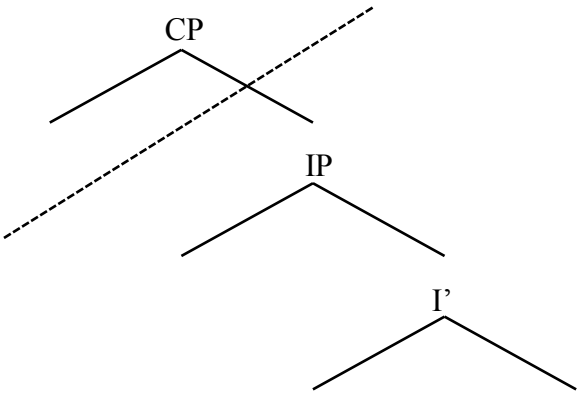

Figure 6. Grammatical truncation in the RI stage

2.2.2 Morphology before Syntax

An alternative account has proposed a close and direct relationship between the acquisition of morphology and syntax. The morphological paradigm is assumed to be a prerequisite condition for functional projections with associated features such as tense and agreement. In this view, the optional use of verb inflections is indicative of an absence of functional categories or features. There are mainly two hypotheses asserting that morphology triggers syntax: the Weak Continuity Hypothesis (Clahsen et al. 1993/1996) and the Rich Agreement Hypothesis (Rohrbacher, 1999).

The Weak Continuity Hypothesis (Clahsen et al. 1993/1996) claims that initial grammar contains only lexical categories. Functional categories that are lacking in the initial state emerge gradually: VP to IP to CP. In other words, the CP appears during later stages of language acquisition. This hypothesis specifies that the acquisition of the morphological paradigm drives the acquisition of functional categories with associated features. Nevertheless, there are studies showing that IP is available in early grammars. Guasti (1993/1994) studied the acquisition of finite and nonfinite verbs on three monolingual Italian children (ages between 1.8 and 2.7) from the CHILDES database. Guasti found that Italian children have knowledge of the verbal agreement system from the earliest stage, and argued that the initial structure includes functional categories, specifically the IP. Likewise, Déprez and Pierce (1993) studied the acquisition of negation and functional projection by monolingual French children. Results show that negation is properly placed. The early presence of negatives reveals knowledge of IP and functional projections in children's early grammar.

The second such assertion is the Rich Agreement Hypothesis (Rohrbacher, 1999). Rohrbacher argued that rich morphology is a necessary precursor to trigger strong feature values

with associated consequences such as verb movement. Rohrbacher claimed that the underspecified feature values in [Infl] are triggered by morphology rather than syntax. As a result, this hypothesis predicts that in the absence of a rich morphological paradigm, feature values will be weak. According to the prediction, in verb-raising languages, L1 acquirers are not expected to exhibit verb raising until verb agreement is fully acquired. This is due to that only rich morphology can trigger strong feature values, and strong feature values trigger verb movement. However, studies have argued against such a causal relation between rich agreement and feature values. Although it seems that languages with rich inflection also have verb raising, for example, French and German, it is not necessarily true that languages with impoverished inflections lack verb raising. Examples are Swedish spoken in Finland, Middle Danish, Middle English and Early Modern English, Afrikaans, and Capeverdean Creole (White, 2003b, p. 161). These are languages without rich inflections, yet they exhibit strong feature values with a consequence of verb raising. In other words, the relationship between a rich morphological paradigm and syntactic movement might be considered as a tendency only. Table 5 shows the two accounts of the relationship between the acquisition of morphology and syntax.

Table 5

Two Accounts of Triggering Relationship between Morphology and Syntax

Triggering relationship	Hypotheses	Evidence
Syntax before Morphology	1. Root Infinitive stage →	a. use of overt subjects, nominative case assignment, verb movement b. few errors in the use of verb inflections
	2. Truncation Hypothesis →	a. clausal structures are truncated with presence of functional categories
Morphology before Syntax	1. Weak Continuity Hypothesis 2. Rich Agreement Hypothesis	a. absence of overt inflections = absence of abstract properties

2.3 Chapter Summary

This chapter presented two opposing views of the triggering relationship between the acquisition of morphology and syntax, and the status of functional categories with associated features in children's early grammar. The syntax-before-morphology position provides convincing evidence in support of the presence of functional category [Infl] in the initial state. The properties of the RI stage, which has been widely observed in monolingual children with different L1 backgrounds, suggest that the functional categories are already in place, and that the omission of verb inflections may be due to truncated structures in children's early grammar. Furthermore, fewer errors in the use of verb inflections than omissions suggest that the feature-checking mechanism is at work and prevents a mismatch from occurring. In contrast, the Weak Continuity Hypothesis claims that functional categories with associated feature are absent in the early grammar, and that the morphological paradigm triggers the acquisition of syntactic representation. The Rich Agreement Hypothesis proposes that rich morphology is a necessary

precursor to trigger the underspecified feature values in the [Infl]. Nevertheless, evidence of IP in children's early grammar has been reported by studies of Italian and French monolingual children. In addition, studies have shown that feature values are not necessarily triggered solely by languages that have rich morphology. The assumption that early grammar lacks a functional projection of [Infl] seems to not be supported by either hypothesis and makes the morphology-before-syntax position less valid.

The debates over the syntactic representations in the initial stage and the indication of omission of verb inflections have been also extensively addressed in both child and adult L2 learners. One of the objectives of this study is to determine differences and similarities among child L1, child L2, and adult L2 acquisition. In the next chapter, I present research in L2 acquisition on the relationship between the acquisition of morphology and syntax.

CHAPTER 3

MORPHOLOGY IN SECOND LANGUAGE ACQUISITION

3.0 Introduction

Bley-Vroman (1990) proposes "the logical problem of language acquisition," when discussing the gap between limited linguistic experiences and attained competence. In exploring and defending the proposition that child language development and adult foreign language learning are fundamentally different, he outlines ten fundamental characteristics of child L1 learners and adult L2 learners (see Table 6). The most noticeable characteristic is the lack of guaranteed success in adult L2 learning. Compared with the complete acquisition that characterizes child L1 acquisition, adult L2 learning usually results in incomplete acquisition. Bley-Vroman suggests that the lack of overall success can be explained by general learning capacities rather than the domain-specific learning system that guides adult L2 learning. In addition to lack of success, general failure also characterizes adult L2 learning. There is considerable evidence that a late start in L2 learning typically precludes achieving native-like mastery of the L2. The classic study by Johnson and Newport (1989) provides strong evidence for such a belief and highlight the permanent plateaus that most adult L2 learners reach. Furthermore, adult L2 learners not only often do not succeed, but they also have varied degrees of success. The features of uniformity and systematicity of child language development contrast sharply with the substantial variations in the attainment of adult L2 learners.

Table 6

Differences between L1 and Adult L2 Acquisition

Child L1	Adult L2
Complete mastery	Lack of success
Complete success	General failure
Systematicity	Variation in success
Lack of goals	Variation in goals
Uniform result	Correlation of age and proficiency
Lack of fossilization	Fossilization
Clear intuitions of grammaticality	Indeterminate intuitions
No need of instruction	Importance of instruction
Lack of negative evidence	Negative evidence
No role of affective factors	Role of affective factors

One of the linguistic areas where most adult L2 learners fail to achieve native-like competence is in inflectional morphology. With regard to this, researchers have argued over the constituents of L2 initial-state grammars, which refer to the very early grammar that learners start out with before receiving linguistic input from the environment. In L2 acquisition, there are two potential determinants that constitute an initial state L2 grammar - UG (e.g., the Full Access Hypothesis of Flynn and Martohardjono, 1994), or the L1 grammar. Section 3.1.1 presents two hypotheses - the Minimal Trees Hypothesis (Vainikka & Young-Scholten, 1996) and the Valueless Features Hypothesis (Eubank, 1993) – claiming that L2 learners start out with L1 parameters. The two hypotheses have been tested for the phenomenon of the omission of verb inflections with syntactic consequences in adult L2 acquisition, and claimed a morphology-before-syntax account of the triggering relationship.

3.1 Morphology in Adult L2 Acquisition

Section 2.2 in chapter 2 described two positions with regard to the presence of functional categories in early grammar and the triggering relationship between morphology and syntax in L1 acquisition. The observable phenomena in the acquisition of verb inflections with syntactic consequences suggest that the functional category [Infl] with associated features is represented in a child's early grammar and that it is highly likely that syntax triggers the acquisition of morphology. In view of these developmental phenomena in the acquisition of the morphological paradigm in monolingual children, researchers have set out to determine whether L2 learners go through similar stages as well (e.g., Lakshmanan, 1991; Prévost, 1997; Rasetti, 1999). The two positions of the triggering relationship between morphology and syntax have been further examined in L2 acquisition. With the presence of native language knowledge, views differ as to the presence of functional categories and features in the L2 initial-state and the triggering relationship between morphology and syntax. This section first examines the two positions of morphology-before-syntax and syntax-before-morphology in adult L2 acquisition, and then move on to examine the data in child L2 acquisition in section 3.2.

3.1.1 Morphology before Syntax

The morphology-before-syntax account takes the omission of verb inflections as an indication of the absence of functional categories or inert features in the underlying representation in adult L2 learners. Morphology is claimed to trigger the acquisition of syntactic representation of functional projections. For some researchers, the initial absence of functional categories and features is a temporary phenomenon which will be acquired later through input (Eubank, 1993; Vainikka & Young-Scholten, 1996). Other researchers argue that the triggering

relationship between overt use of verb inflections and syntactic competence in L1 acquisition does not exist in L2 acquisition, and causes a permanent deficit in the L2 grammars (Clahsen & Hong, 1995). The Minimal Trees Hypothesis of Vainikka and Young-Scholten, the Valueless Features Hypothesis of Eubank, and the Global Impairment Hypothesis of Clahsen and Hong in the morphology-before-syntax position are presented next.

3.1.1.1 Minimal Trees Hypothesis

The Minimal Trees Hypothesis (Vainikka & Young-Scholten, 1996) claims that the L2 initial-state grammar consists of only parts of L1 grammar. It argues that only L1 lexical categories are presented in the initial grammar whereas functional categories from L1 or UG are absent altogether. In other words, initial state grammar contains no functional categories. L2 learners acquire L2 parameters and functional categories with L2 properties. Functional categories that are absent in the initial state will gradually emerge as triggered by L2 properties with associated projections such as Infl Phrase (IP) or Complementizer Phrase (CP). Such a gradual emergence of functional categories is believed to occur in a specific sequence: VP before IP before CP. In other words, the presence of CP implies the presence of IP, but not verse versa.

Vainikka and Young-Scholten (1996) examined spontaneous production data from Turkish and Korean as well as Spanish and Italian adult learners of German. Turkish and Korean have head-final VP, which is like German, while Spanish and Italian have head-initial VPs. Based on the Minimal Trees Hypothesis, the L2 initial-state grammar contains only lexical categories with the headedness feature from L1, but not functional projections like IP or CP. Vainikka and Young-Scholten predicted that Turkish and Korean L2 learners of German would produce sentences showing a head-final feature, while Spanish and Italian L2 learners of German

would produce sentences showing a head-initial feature. Speech production data showed that over 95% of VP had head-final feature in Turkish and Korean speakers, and predominantly head-initial VP in Spanish and Italian. Results confirmed the prediction of transfer of native language lexical categories and headedness features to the L1.

Vainikka and Young-Scholten further examined data to determine whether L2 early grammar contains functional categories. In their view, the lack of overt forms in production is taken as evidence of the absence of abstract properties in the underlying representation. Results from both groups show the following features. First, suppliance of subject-verb agreement is low, modal and auxiliaries are almost not used, and finally, there are no subordinate clauses introduced by complementizers, such as *that* in their speech production. Based on these findings, Vainikka and Young-Scholten claimed that L2 early grammars lack functional projections of IP and CP. The L2 initial-state grammar is a bare VP stage similar to child's RI stage.

However, there are conceptual issues in the assumptions of the Minimal Trees Hypothesis. As pointed out by White (2003), the steady-state grammar (the L1) contains functional categories and an inventory of functional categories from UG and as such, the assumption that an interlanguage initial state lacks all these abstract properties is less reasonably made. Moreover, a number of researchers have proposed a distinction between absence of overt morphology and absence of abstract properties in the underlying representation. In other words, abstract properties can be present in the absence of overt forms in surface structure (Beard, 1995; Lardiere, 2000). If syntactic properties such as overt subjects and nominative subjects are consistently used by L2 learners, it suggests that the functional categories with associated features are present in L2 grammar, even with the lack of overt forms in surface structure.

The Minimal Trees Hypothesis of Vainikka and Young-Scholten claims a total absence of functional categories in L2 initial state and a final-stage of CP projection. However, these claims were not well established. There are conceptual issues requiring further explanation and a number of studies have reported evidence for L1 transfer of functional categories, presence of functional projection in L2 initial state, and emergence of CP before IP.

3.1.1.2 Valueless Features Hypothesis

Eubank's Valueless Features Hypothesis (1993) claims that both L1 lexical and functional categories are present in the L2 initial-state grammar. However, the L1 feature values do not transfer. Features are valueless, being neither strong nor weak in the initial state. As mentioned in section 2.1.3, feature values have a consequence for word-order differences among languages. English has a weak V-feature, so finite verbs remain in the VP. In contrast, French has a strong V-feature, so finite verbs are required to be raised to *I* to check their features. The variation in the V-feature values leads to differences in the surface word order between English (e.g., Sbj.-Adv.-finite V.-O.) and French (e.g., Sbj.-finite V.-Adv.-O.).

According to the Valueless Features Hypothesis, the inert feature values in L2 initial state may cause an optional verb-raising phenomenon in the early stage. For example, French L2 leaners of English may produce finite verbs which are sometimes unraised as in the sentence (11a) and sometimes raised as in the sentence (11b). The optional verb-raising phenomenon is identical for English L2 learners of French.

(11) a. Mary often watches television. (v-unraised)
b.*Mary watches often television. (v-raised)

Although the Valueless Features Hypothesis predicts the optional verb-raising phenomenon in the initial stage of L2 acquisition, a number of studies provide evidence to the contrary. Yuan (2001) examined the verb-raising phenomenon with English and French native speakers in their first year of learning Chinese. Chinese has a weak V-feature, so verbs do not undergo movement. Verb movement is considered ungrammatical in Chinese. Sentence (11a) above reflects the grammatical word order in Chinese, while sentence (11b) with verb movement is an example of an ungrammatical word order. According to the Valueless Features Hypothesis, both English and French native speakers should have optional verb movement in Chinese, regardless of whether the L1 has weak (i.e., English) or strong (i.e., French) feature values. The results of oral production and grammaticality judgment tasks showed that English and French speakers did not allow optional verb movement in Chinese. There was no evidence of optional verb-raising in either group, suggesting that feature values are not inert. These results were inconsistent with the assumptions of the Valueless Features Hypothesis.

However, Eubank claims that valueless features may be a temporary phenomenon that shows up in the very early stage of L2 acquisition. Accordingly, Eubank argues that those adult L2 learners in Yuan's study had probably passed the initial state (i.e., length of residence < one year) and thus had had sufficient exposure to L2. The feature values could therefore have been reset to Chinese feature values. Eubank further claims that the subsequent acquisition of feature values depends on the acquisition of inflectional morphology. As a result, inconsistent use of verb forms in the early stage causes inconsistent use of certain syntactic properties, such as the abovementioned optional verb movement. The absence of the morphological paradigm is claimed to result in optional verb movement.

Similar to the Minimal Trees Hypothesis, there are conceptual issues that need to be clarified by the Valueless Feature Hypothesis. The Valueless features Hypothesis of Eubank claims that both L1 lexical and functional categories are present in the L2 initial-state grammar, while features are valueless, being neither strong nor weak in the initial state. However, it is not clear why the L2 initial state contains L1 lexical and functional categories, but not the feature values. The inert values in L2 grammar require a theoretical explanation. Also, it is uncertain whether the inert feature values in the L2 initial state is limited to the functional category [Infl] or other abstract properties as well.

The Minimal Trees Hypothesis of Vainikka and Young-Scholten as well as the Valueless Features Hypothesis of Eubank have been examined above with regard to the constituent of L2 initial-state grammar. From their views, L2 initial-state grammar contains only L1 lexical categories or both lexical and functional categories with inert feature values. As we have seen, both hypotheses require some clarification in terms of their theoretical assumptions. At the same time, ample evidence has been found against their assumptions. Thus, the two hypotheses fail to provide strong evidence in support of the morphology -before-syntax position.

3.1.1.3 Impairment Hypothesis

The Minimal Trees Hypothesis and the Valueless Features Hypothesis imply an incomplete syntactic representation in L2 initial state. This phenomenon is nevertheless claimed to be temporary. Over the long term, the morphological paradigm will be acquired, and subsequently trigger the acquisition of functional projections and feature values. In contrast to the temporary deficit view, Clahsen and Hong (1995) propose the Global Impairment Hypothesis

claiming that the functional categories and features are absent altogether in L2 grammars, resulting in a permanent deficit in L2 grammars.

Clahsen and Hong assert that syntactic and morphological properties related by a single parameter should cluster together, as shown in L1 acquisition. However, they claim that such a clustering effect does not exist in L2 acquisition and results in a total breakdown in the L2 parameter indicating an impaired morphological paradigm. Clahsen and Hong (1995) investigated the clustering effect in the context of the Null Subject Parameter with participants consisting of native speakers of Korean learning German. Korean is a [+ null subject] language, whereas German is a [- null subject] language. The subject must be overt in German, but not necessarily in Korean. Clahsen and Hong proposed two attributes in the Null Subject parameter: licensing and identification. There must be some properties in licensing a null subject, and a null subject must be identified. For example, in Romance languages, the null subject is identified via a rich verbal agreement. In languages with impoverished agreement, such as Korean, a null subject is identified via a preceding topic in the discourse. In terms of licensing, null subjects are licensed in both German and Korean; thus, Korean speakers learning German L2 only need to reset the parameter to determine how null subjects are identified. According to Clahsen and Hong, licensing and identification of null subjects co-vary in German. Children allow null subjects in German until they acquire the agreement paradigm, and once acquired, null subjects are no longer present. Under the Global Impairment Hypothesis, such a clustering effect does not exist in L2 grammar. L2 learners will exhibit morphological variability with the presence or absence of subject.

A sentence-matching task was administered to 35 Korean native speakers. Of the 33 respondents, 13 recognized that German requires overt subjects and agreement; 2 failed to

recognize both conditions; 5 failed to distinguish overt and null subjects, while distinguishing sentences with correct and incorrect agreement, and 13 failed to distinguish sentence with the correct and incorrect agreement, although they did distinguish overt and null subjects. Based on these results, Clahsen and Hong argued that properties that would cluster together under some parameters in L1 acquisition no longer function in L2 acquisition. Likewise, the close triggering relationship between the acquisition of overt morphology and syntactic properties in L1 acquisition is also not exhibited in adult L2 acquisition.

Beck (1998) proposed the Local Impairment Hypothesis and claimed that L2 grammar suffers a deficit in feature values. However, the deficit in feature values is claimed to be permanent in contrast to a temporary deficit in feature values proposed by Eubank's Valueless Features Hypothesis. Under this hypothesis, feature values in interlanguage grammar are considered to be permanently impaired. Moreover, L2 feature values will remain impaired even if the morphological paradigm is acquired. This assumption is in contrast with the Valueless Features Hypothesis which claims that once the morphological paradigm is acquired, the feature values will set to weak or strong depending on the L2 feature values.

To sum up, the Minimal Trees Hypothesis, the Valueless Features Hypothesis, and the Impairment Hypothesis claim an incomplete representation whether temporarily or permanently in L2 grammars, and a dependent relationship between acquisition of verb inflections and syntactic properties. In the morphology-before-syntax position, acquisition of overt morphology triggers the acquisition of syntactic competence. In other words, the absence of overt morphology is indicative of the absence of abstract properties in the underlying representation. Table 7 shows the three hypotheses in the morphology-before-syntax position.

As seen in the next section, an alternative position, the syntax-before-morphology, has opposite views in terms of the presence of abstract properties and triggering relationship between acquisition of morphology and syntax in L2 acquisition. The absence of overt morphology is not indicative of the absence of abstract properties. Syntactic evidence, such as the use of overt subjects, is evaluated and indicative of the presence of functional categories with associated features. Syntax is claimed to trigger morphology.

Table 7

Hypotheses in the Morphology-Before-Syntax Position

	Minimal Trees	Valueless Features	Impairment
Initial state	L1 lexical categories only	L1 lexical & functional categories with inert feature strength	Lack of abstract properties
Development	L2 input triggers emergence of functional categories	Inert features replaced by L2 feature strength	Permanent impairment
Final	L2-like grammar	L2-like grammar	Permanent impairment

3.1.2 Syntax before Morphology

The syntax-before-morphology position proposes an independent relationship between the acquisition of morphology and syntax with the latter seen to trigger the acquisition of morphology. It is claimed that abstract properties with associated features are present in syntactic representation of L2 grammars, and L2 learners are able to discover the specification of overt morphology (e.g., Beard, 1995; Lardiere, 2000). From this view, the omission of verb inflections is not indicative of the absence of abstract properties in L2 grammars. Instead, it may result from a problem in mapping the abstract feature to its surface form.

3.1.2.1 Separation Hypothesis

Studies in the acquisition of verb inflections have been concerned with the status of functional categories in L2 grammars. Researchers for the syntax-before-morphology position claim a difference between the presence of overt morphology and abstract properties in underlying representations (e.g., Herschensohn, 2001; Lardiere, 1998; Prévost & White, 2000; White, 2003). They propose the Separation Hypothesis, claiming that abstract properties with associated features can be present in the absence of overt forms in surface structure. As opposed to the morphology-before-syntax position, the absence of overt morphology does not reflect an absence of abstract knowledge. Syntactic properties such as the use of overt subjects and the nominative case assignment of pronoun subjects are evidence of the presence of the functional projection of IP. As previously noted, the use of syntactic properties is via a feature-checking mechanism, and the consistent use of those properties indicates the presence of the functional category [Infl]. Below, I first review several studies on adult L2 learners that provide evidence in support of the Separation Hypothesis – the presence of functional categories with associated features in the early stages.

Lardiere (1998) conducted a classic case study on a Chinese native speaker, *Patty*, who had learned English as an L2. Both Chinese and English are impoverished in inflections and have weak features in [Infl]. The first recording of *Patty*'s speech production was made after she had been living in the United States for about 10 years, while the second and the third recordings covered a span of approximately 8 years. The results show that incidence of tense morphology in spontaneous production is at about 35%, while the third-person singular *–s* is less than 17%. *Patty*'s suppliance of verb inflections was strikingly low. Upon a closer examination of *Patty*'s syntactic competence, Lardiere found evidence for syntactic knowledge which has been claimed

as a consequence of acquisition of the morphological paradigm. First, *Patty* showed no incidence of null subjects in her speech production despite her impoverished use of inflections. Second, she produced total accuracy in the incidence of nominative case assignment in finite and nonfinite clauses. As expected, there is a close relation between the [±finite] specification in IP and the assignment of nominative case to subject position. *Patty*'s perfect nominative case assignment implies the presence of the functional category [Infl].

In the area of verb movement, researchers have suggested that morphological paradigms trigger feature values, and a strong feature triggers verb raising. In *Patty*'s case, such an account would predict optional verb raising due to *Patty*'s low rate of using verb inflections. In *Patty*'s grammar, a verb might be raised or unraised regardless of the verb forms being finite or nonfinite. However, results show that verb movement does not occur in *Patty*'s speech production. As the verb does not raise past Negation or Adverb, it appears that verb raising is not optional in *Patty*'s grammar. In other words, *Patty* recognizes that English verbs do not raise and thereby has set the feature to be weak.

Prévost and White (2000) examined speech production data from four adults learning L2 French and German. The two adult learners of French were first interviewed after being one year in France, while the other two adult learners of German were first recorded three months after their arrival in Germany. The four adults had had no previous exposure to French or German, and all had an age of onset after the teenager years. The recordings were conducted for less than 2 years on a monthly basis. Results show that accuracy in the use of verb agreement is largely correct in French and German L2 learners (i.e., around 95% accuracy). The incidence of finite forms in non-finite contexts or randomly distributed in finite and nonfinite contexts is very low. In the area of verb movement, the feature value in both French and German is strong, and

therefore the finite verb has to raise over negation via the feature-checking mechanism. Results show that finite verbs systematically precede the negation in both French and German learners, suggestion that adult learners are able to distinguish between finite and nonfinite forms and that finite features associated with functional categories are present in their grammar.

With respect to the inconsistent use of verb inflections, Prévost and White (2000) proposed the Missing Surface Inflection Hypothesis in claiming a mapping problem, rather than impairment in L2 grammars. They argued that morphological variability indicates nothing more than a problem in mapping abstract features to surface forms. L2 learners have unconscious knowledge underlying tense and agreement, but they sometimes have problems with the realization of overt morphology. Despite the frequent omission of verb inflections, syntactic knowledge may be well present in early L2 grammars.

Herschensohn (2001) investigated the acquisition of verb inflections by two English native speakers learning French. The two participants, *Emma* and *Chloe*, were high school students aged between 16 and 17. Both of them had taken four years of secondary French, but their grammatical knowledge was claimed to be at a low level. *Emma* studied French in an American academic setting (i.e., French as a foreign language), while *Chloe* had spent six months in a senior high school in France (i.e., French as L2). Prior to *Chloe*'s departure for France, both girls had studied French at a community college for three months. *Emma* continued the following six months during the period of Chloe's stay in France. Apparently, both were not considered as being at the initial stage of language learning. Data were collected over the six-month period: once before *Chloe*'s visit to France, once at the midpoint and once at the end through interviews. Results showed a considerable high accuracy in the use of verb inflections. The average percentage in the use of verb inflections was 81% and 86% in the speech production

data of *Emma* and *Chloe*, respectively. In the area of verb movement with negation, data from both participants show consistent verb movement to the left of negation. Based on those findings, Herschensohn claims that functional categories are available early in the L2 intermediate grammar stage, suggesting an independent relationship between syntax and morphology.

Likewise, White (2003) conducted a case study of an adult native speaker of Turkish, *SD*, a bilingual speaker of Turkish-L1 and English-L2. She had moved to Canada with her family when she was 40. She had had minimal foreign language instruction in English in high school in Turkey. When *SD* moved to Canada, she attended college where she began her significant exposure to English. *SD* had subsequently worked in English-speaking environments. The language she spoke at home was Turkish. Four interviews were conducted over a period of two months. After eighteen months, the fifth interview was conducted to determine any change over time. The results showed that the production of verb inflections was high (i.e., average around 80%), and that faulty inflections were rarely found. With respect to related syntactic properties, while *SD* omitted verb inflection in speech production, she never omitted subjects, even though the L1 is a [+ null subject] language. Moreover, the assignment of nominative case to subject was always present, even if she failed to produce verb inflections. Similar to the studies conducted by Lardiere (1998) and Prévost and White (2000), White (2003) found evidence in favor of the early presence of functional categories and features in L2 grammars. Table 8 summarizes the results of the four studies on adult L2 learners.

Table 8

Summary of Studies on Adult L2 Learners

	L1/L2	Verb inflections (accuracy %)	Overt subjects	Nominative case	Verb movement
Lardiere (1998)	Chinese/English	~ 35%	100%	100%	100% (unraised)
Prévost & White (2000)	English/French, German	~ 95%	—	—	~100% (raised)
Herschensohn (2001)	English/French	~ 84%	—	—	~100% (raised)
White (2003)	Turkish/English	80%	~ 100%	~ 100%	—

Studies on adult L2 acquisition can be summarized as follows -

1. Early acquisition of related syntactic properties: overt subjects, nominative case assignment of subject pronouns, and verb movement are productively used in the early stage. This suggests that the functional category [Infl] with associated features is present in the underlying representation.

2. An independent relationship between the acquisition of morphology and syntax: the clustering of syntactic and morphological development which is represented by the RI stage in L1 acquisition is not attested in adult L2 acquisition. Findings suggest an independent relationship between the acquisition of morphology and syntax.

3. L1 transfer: verb inflections were productively used in three out of the four studies, except for Lardiere's case study on a Chinese L2 learner of English. The low

suppliance of verb inflection is likely to be attributed to L1 influence, as Chinese has impoverished morphology and possibly without [Infl] node.

The above discusses two positions with regard to the relationship between the acquisition of morphology and syntax in adult L2 acquisition. The overall evidence is in support of the Separation Hypothesis in the syntax-before-morphology position in adult L2 acquisition. Syntactic properties, such as overt subjects and nominative subjects, are consistently produced during the same period when verb inflections are largely omitted. As the use of syntactic properties is via the feature-checking mechanism, it suggests that L2 grammar is not impaired and that it is syntax triggering the acquisition of morphology. In contrast, in L1 acquisition, the use of overt morphology and syntactic properties are closely related to each other, as shown by the properties of the RI stage in monolingual children.

In short, the developmental phenomena in the acquisition of verb inflections and syntactic competence are rather different between L1 acquisition and adult L2 acquisition. In view of these differences, there is a need to examine the developmental phenomena in child L2 acquisition. Given that both child L1 and child L2 acquisition are UG-constrained, will the dependent relationship between morphology and syntax exhibited in the RI stage in monolingual children be shown in child L2 acquisition as well? Or, on the contrary, will an independent relationship be attested in child L2 acquisition as was the case in adult L2 acquisition? The next section presents studies on child L2 acquisition.

3.2 Studies in Child L2 Acquisition

In section 2.1, the properties of the RI stage in monolingual children were described, showing a developmental relationship between the emergence of finite verbs and the emergence of syntactic properties – co-occurrence of finite verbs with the licensing of subjects, nominative case assignment and verb movement. However, the dependent relationship between morphology and syntax does not seem to be attested in adult L2 acquisition. This section further examines studies in child L2 acquisition.

Lakshmanan (1991) examined the production data of a Spanish native-speaker girl, *Marta*. Data were originally collected by Cazden et al. (1975). *Marta* moved to the U.S. when she was 4 years and 5 months old (4;5), and attended an all-English nursery school. Data were collected shortly after one month of her arrival, and every two weeks thereafter for a period of eight months. Lakshmanan reported evidence of the functional projection of IP in the very early data. First, the copula and auxiliary *be*, which is associated with the functional category [Infl] appeared early in *Marta*'s grammar during the first two months of data collection. Second, the subject was largely present. However, the production of verb inflections in obligatory contexts was completely omitted in *Marta*'s early speech during the same first two- month period. Accuracy in the production of third-person singular *-s* and past tense regular inflection *–ed* remained at zero percent. The early presence of the function category [Infl] suggests that the development of syntax is dissociated and precedes the development of morphology.

Grondin and White (1993) also claimed that functional categories such as DP and IP are present from the very beginning stage in child L2 acquisition. They examined longitudinal production data originally collected by Lightbown (1977). The subjects were two English-speaking children, *Kenny* and *Greg*, learning French as L2. At the time of data collection, *Kenny*

was aged 4;9, and *Greg*, 4;5. Data were collected over a period of three years. Results showed that the production of determiners in obligatory contexts was high at the very beginning of data collection, suggesting the presence of DP. With respect to the IP projection, Grondin and White found two types of evidence. First, morphological evidence including the consistent use of verb inflections for tense and agreement as well as the early appearance of copula and auxiliary *be* was found in the early speech production of the two children. Second, syntactic evidence such as the correct movement of finite verbs to be the left of negative *pas* and the nominative case assignment was present in their utterances. Overall the evidence suggests that the functional category [Infl] was indeed present in the early L2 grammar of the two children.

Likewise, Haznedar (2001) investigated IP-related elements, such as copula *be*, agreement *–s*, regular past form *–ed*, and irregular past forms, and the distribution of overt and non-nominative subjects. She reported a dissociated relationship between the presence of verb inflection and syntactic representation in the production data from a Turkish native-speaker child, *Erdem* learning English as an L2. *Erdem* was born in Turkey and immigrated to England at the age of 4. The recording was first conducted after one year of exposure to an English-speaking environment, and the recording period took place over a span of eighteen months. Results showed an accuracy rate of 25.5 % in the use of past tense *-ed*, and 46.5% in the use of third-person singular *–s* and 96% in the use of copula *be*. In terms of syntactic development, subjects were all overtly present and invariably assigned nominative case. At the time, *Erdem* did not provide any third-person singular *–s* until later. *Erdem*'s speech production data showed that syntactic knowledge was acquired earlier than use of overt inflections. Haznedar (2001) concluded that the functional category [Infl] is present in L2 initial-state grammar, and that syntactic development does not depend on the acquisition of overt morphology.

Ionin and Wexler (2002) examined morphological variability in spontaneous production data and a grammaticality judgment task of 20 Russian L2 learners of English aged between 3;9 and 13;10. They predicted that first, L2 learners would use non-finite forms in place of finite forms, and that the syntactic representation of functional projections and the feature-checking mechanism would be fully present. Second, they predicted that suppletive forms (e.g., *be*) would be used more productively than affixal forms (e.g., -s and -*ed*) by L2 learners. Ionin and Wexler (2002) found that suppliance of verb inflections in affixal form was low at 42% in the use of past tense –*ed*, and 22% in the use of third-person singular –*s*, while suppliance of the suppletive form, the copula *be* was as high as 84%. This confirmed the prediction that acquisition of suppletive forms would emerge before affixal forms. Nevertheless, it is interesting to note that Russian has rich morphology in affixal forms, but lacks an overt suppletive *be* form. L1 transfer is least likely to be the reason for low suppliance of –*s* and –*ed*. With respect to syntactic competence, null subjects and optional verb raising barely existed in the speech production of the 20 child L2 learners. Results indicated that they acquired the functional category [Infl] with feature values set to the L2 value. While there is morphological variability, the subject and verb placement was consistently present. As such, acquisition of syntactic knowledge precedes acquisition of verb inflections, even in L2 learners with rich morphology in L1.

Geckin and Haznedar (2008) studied the acquisition of verb inflections, copula *be* forms, null subjects and case on pronouns subjects from three Turkish child L2 learners of English: *Nil*, *Ayda,* and *Elif,* all at the age of approximately 4;5. They were attending an international school in Turkey, where they learned English six hours per day. Their first exposure to English was around the age of 3;5. Spontaneous production data were collected individually over a period of seven months for one to two hours per session, three to four sessions per month. In the use of

verb inflections, for *Nil*, *Ayada*, and *Elif*, average suppliance of agreement *–s* was 67%, 20%, and 47%, respectively; average suppliance of past regular *–ed* was 57%, 28%, and 56%; the average suppliance of suppletive form, the copula *be*, was 90%, 81%, and 85%. With regard to syntactic properties, subjects were largely overt and assigned nominative case. Based on the findings, Geckin and Haznedar concluded that the functional category [Infl] with associated features is present in the syntactic representation of child L2 learners. Table 9 summarizes the five studies on child L2 learners.

Table 9

Summary of Studies on Child L2 Learners

	L1 / L2	Verb inflections (*-s* & *-ed*)	Overt subjects	Nominative case	Verb movement
Lakshmanan, (1991)	Spanish/English	0%	~100%	__	__
Grondin & White (1993)	English/French	~100%	~100%	~100%	~100%
Haznedar (2001)	Turkish/English	~36%	~100%	~100%	__
Ionin & Wexler (2002)	Russian/English	~32%	~100%	__	100%
Geckin & Haznedar (2008)	Turkish/English	~ 46%	~100%	~100%	__

Studies on child L2 acquisition can be summarized as follows -

1. Early acquisition of related syntactic properties: overt subjects, nominative case of pronoun subjects, and verb movement are appropriately used in the same period when

verb inflections are frequently omitted. This suggests that functional categories with associated features are present in child L2 grammars.

2. An independent relationship between the acquisition of morphology and syntax: the clustering of syntactic and morphological development which is represented by the RI stage in L1 acquisition is not attested in child L2 acquisition. Overall findings suggest a dissociated relationship between the acquisition of morphology and syntax.

3. Asymmetry in the use of suppletive and affixal forms: affixal forms, such as agreement *–s* and regular past *–ed* are largely omitted, while the suppletive form, the copula *be* is used productively.

4. L1 transfer: verb inflections were not productively used by child L2 learners in four out of the five studies. It is noteworthy that the four studies were conducted on native speakers of Spanish, Turkish, and Russian, languages with rich morphology. These child L2 learners still encountered difficulties in the use of verb inflections even though their L1s have rich morphology.

In sum, studies on child L2 learners show that syntactic properties such as overt and nominative subjects are consistently produced during the period when verb inflections are still largely omitted. Early acquisition of syntax is thus observable in child L2 learners, as was the case with adult L2 learners. Likewise, this suggests that abstract properties related to tense and agreement are present, and that the acquisition of morphology and syntax are dissociated from

each other in both child and adult L2 acquisition. Overall evidence is in favor of the Separation Hypothesis in the syntax-before-morphology position, and against the incomplete representation view in the morphology-before-syntax position, which takes the omission of overt morphology as an indication of the absence of abstract properties. This dissertation presents further evidence in support of the Separation Hypothesis in the syntax-before-morphology position in child L2 acquisition. As can be seen in Table 8, studies on the acquisition of verb inflections have been extensively conducted on child L2 learners with rich morphology in L1, such as Turkish, Russian, and Spanish. What seems to be lacking, however, is research on the acquisition of verb inflections from child L2 learners with impoverished morphology in L1, for example, Chinese. Furthermore, it has been found that even though the L1 may have a rich morphology, child L2 learners seem to still encounter difficulties in the use of verb inflections in L2. To find out whether L1 transfer plays a role on the acquisition of verb inflections, this study seeks to contribute to the acquisition of verb inflections by child L2 learners with impoverished morphology in L1.

Before moving on to the presentation of my study, I summarize differences in the acquisition of morphology and syntax between child L1, child L2, and adult L2 acquisition in the next section.

3.3 Differences between Child L1, Child L2, and Adult L2 Acquisition

Table 10 presents the differences in the acquisition of morphology and syntax between child L1, child L2, and adult L2 acquisition. In L1 acquisition, morphological and syntactic development are related. The use of finite forms co-occurs with the use of overt subjects,

nominative case of subject pronouns, and verb movement. However, the clustering relationship between morphology and syntax does not hold in child and adult L2 acquisition.

One of my research questions is to determine the similarities and differences in the acquisition of verb inflections with syntactic consequences among child L1, child L2, and adult L2 acquisition. There has been an ongoing debate about whether language acquisition at early ages is different from language acquisition at late ages. It is generally agreed that L2 acquisition is subject to maturational constraints (Birdsong & Molis, 2001; Flege, Yeni-Komshian, & Liu, 1999; Johnson & Newport, 1989). Older learners might no longer have access to UG, while younger learners still do. Child L2 learners are like adult L2 learners, in that they have acquired their native languages, yet they differ in the age of onset of L2 acquisition. On the other hand, child L2 acquisition is like child L1 acquisition, in that both populations have access to UG, while child L2 learners have knowledge of another language. Child L2 learners share characteristics of both the L1 child (i.e., early start and UG-governed) and adult L2 learners (i.e., presence of native language knowledge). The inquiry into early child L2 learners, in whom both L1 and L2 are developing, may inform us about the nature of interlanguage grammars, and the influence of native language knowledge in acquiring L2.

Table 10

Acquisition of Verb Inflections and Syntactic Properties in L1 and L2 Acquisition

	Child L1	Child & Adult L2
Morphology ↕ Syntax	closely associated	syntax > morphology
Overt Subject	finite form → Overt subjects nonfinite form → Covert subjects	always overt subjects
Case assignment	finite form → Nominative subjects nonfinite form → Accusative subjects	always nominative subjects
Verb placement	finite form → verb raised nonfinite form→ verb unraised	finite form → verb raised (non)finite form → verb unraised
Faulty agreement	Rare	rare

3.4 Chapter Summary

Section 3.1 addressed two positions with regard to the presence of functional categories with associated features and the triggering relationship between morphology and syntax in L2 acquisition. The Minimal Trees Hypothesis (Vainikka & Young-Scholten, 1994) specifies that L2 initial-state grammar consists only of L1 lexical categories. The Valueless Features Hypothesis (Eubank, 1993/1994) claims that L2 initial-state grammar contains both L1 lexical and functional categories, while the feature value is inert. Both hypotheses imply that the underlying representation is somewhat incomplete – lacking functional categories or feature values, and that the acquisition of morphology triggers the acquisition of syntax. In contrast, another group of researchers proposes an independent relationship between morphology and syntax. The Separation Hypothesis claims that abstract properties can be present in the absence of overt morphology in the surface structure. From this view, the absence of verb inflections does not entail an absence of abstract properties. Syntactic properties such as the use of overt

subjects and nominative subjects are evidence of the presence of functional categories, and are claimed to trigger the acquisition of morphology.

As mentioned in section 3.1.1, the Minimal Trees Hypothesis of Vainikka and Young-Scholten as well as the Valueless Features Hypothesis of Eubank require further clarifications for their theoretical assumptions. The two hypotheses in the morphology-before-syntax position fail to provide strong evidence that accounts for the relationship between the acquisition of morphology and syntax. Given the results of previous research conducted on child and adult L2 learners, this study provides further evidence in support of the Separation Hypothesis in the syntax-before-morphology position in child L2 acquisition.

This study has two objectives. The first is to examine the acquisition of verb inflections with syntactic consequences by Chinese child L2 learners of English. In the literature, much of the studies conducted in past decades focus on adult L2 learners, while few studies have been conducted in child L2 learners. In particular, little is known about child L2 learners with impoverished morphology in L1, such as Chinese. This study thus seeks to contribute to the acquisition of verb inflections by child L2 learners through longitudinal data from six Chinese-speaking child L2 learners of English to find out whether L1 transfer plays a role in the acquisition of verb inflections. The second objective is to determine similarities and difference in the relationship between the acquisition of morphology and syntax by comparing findings of the current study with studies on child L1 and adult L2 acquisition in the literature. The present study on the acquisition of tense and agreement by the six Chinese child L2 learners of English is presented next.

CHAPTER 4

THE STUDY

4.0 Introduction

Chapters two and three discuss our current understanding of the relationship between the acquisition of morphology and syntax in child L1, child L2, and adult L2 acquisition. In the past decades, the use of verb inflections with syntactic consequences has been a subject of extensive research in adult and child L2 learners. What seems to be lacking, however, is research on the acquisition of verb inflections in child L2 learners with impoverished morphology in their L1. Previous studies conducted on child L2 learners with rich morphology in their L1 show that children still have difficulties in the use of verb inflections in the early stages of language acquisition. To find out whether L1 transfer plays a role in the acquisition of verb inflections, this dissertation seeks to examine the acquisition of verb inflections from Chinese-speaking children learning English tense and agreement morphology. Furthermore, the findings of this study were compared with the findings on child L1 and adult L2 learners reported in the literature. Child L2 learners, as defined by Schwartz (2003), are those whose age of exposure to the L2 is between 4 and 7. The inquiry into child L2 learners, in whom both L1 and L2 are still developing, may shed light on our understanding of interlanguage grammars and the influence of native language knowledge on L2 acquisition at early ages.

This dissertation investigates the acquisition of English tense and agreement and associated syntactic properties by analyzing spontaneous production data from six Chinese-speaking children learning English at an early stage. This study observes the development of tense-related morphology: the third-person singular *-s*, past tense *-ed*, auxiliary *be*, and copula

be, as well as related syntactic properties: the use of overt subjects and nominative case assignment of pronoun subjects.

4.1 Hypothesis and Predictions

Previous studies on the acquisition of verb inflections and syntactic properties provide convincing evidence in favor of the Separation Hypothesis, which belongs to the syntax-before-morphology position. In this study, I adopt the Separation Hypothesis stating that: (1) abstract properties can be present in the interlanguage grammar, even in the absence of overt morphology in surface structure, and (2) syntax triggers the acquisition of morphology (e.g., Haznedar & Schwartz, 1997; Ionin & Wexler, 2002; Prévost & White, 2000).

The two research questions addressed in this study are:

1. Is there a developmental relationship between the use of tense/agreement morphology and related syntactic properties in child L2 learners in an early stage of language acquisition?

2. Is child L2 acquisition more like child L1 or adult L2 acquisition in the acquisition of verb inflections with syntactic consequences?

Based on the Separation Hypothesis, I have made the following predictions:

1. Syntactic development will precede morphological development. Participants will demonstrate the use of overt subjects and nominative case assignment before the use of overt morphology, such as the third-person singular-*s* and regular past tense *–ed*, in speech production.

2. Syntactic development will be independent of morphological development. Syntactic properties will be used productively in the same period during which verb inflections are still largely omitted.

3. If the predictions (1) and (2) are borne out, it will suggest that child L2 acquisition is more like adult L2 acquisition

4.2 Participants

This longitudinal study included six Chinese-L1 English-L2 children with ages between 7 and 9 (M = 8, SD = 1.09), and lengths of residence in the United States between four and five months (M = 4.67, SD = .52). The children had been enrolled in an English-speaking elementary school since arriving in the United States. Their parents were visiting scholars and were staying in the United States for a short period of ten to twelve months. Note that all of the children had learned English as a foreign language regularly in their home schools in China before coming to the United States. The English class was about 40 minutes per session and four sessions per week. The goal of the curriculum was to provide an English-speaking environment for students to practice English conversation. The class did not offer formal instruction or drill for grammatical rules. Due to the limited learning experiences, while all participants had been learning English as a foreign language for two to four years before their arrival in the U.S., their English proficiency remained low. This study thus intends to capture L2 development of English at an early stage.

At the time of their first interview, all children had had exposure to English for a minimum of four months. The background information of the children was obtained via a take-

home questionnaire (Appendix A). Their parents were asked to fill out the questionnaire, which included questions pertaining to sex, age, age of first exposure to English, length of residence, fluency in Chinese, fluency in English, and language spoken at home. Fluency in Chinese and English was rated on oral and literacy development. The background information of the six participants is listed in Table 11.

Table 11

Background of the Participants

Name[a]	Sex	Age	Age of 1st exposure to English	Length of residence at 1st visit	Fluency in Chinese[b]	Fluency in English[b]	Language spoken at home
Chris	M	7	5	4 m	4	1	Chinese
Lynn	F	7	6	4 m	4	1	Chinese
Hanna	F	9	6	5 m	5	1	Chinese
Jack	M	9	6	5 m	5	2	Chinese
Sammy	F	7	5	5 m	5	2	Chinese
Ann	F	9	6	5 m	5	3	Chinese

Note. [a]Pseudonyms. [b]Fluency was rated on a five-point scale, ranging from not fluent (1) to very fluent (5).

4.2.1 Proficiency Measure

In L1 acquisition, children's language development, especially during the early stages, is commonly measured by mean length of utterance (MLU) (Brown, 1973). This measurement uses morphemes, rather than words, as a unit. The standard method of calculating MLU is to divide the number of morphemes by the number of utterances. However, in L2 acquisition, MLU does not seem to be reliable beyond the two-word stage (Klee & Fitzgerald, 1985). It has been observed that L2 learners are capable of producing multi-word sentences after a short period of exposure to the L2 (Adamson, 1988).

Accordingly, the unit of proficiency measure used in the study is the mean length of utterance in words (MLUw), which was determined from each individual child's second speech sample. Table 12 shows the mean MLUw of the participants (M = 5.80, SD = .45). Skewness for the score of MLUw was computed, and the value was less than an absolute value of one. This suggests a reasonably normal distribution - the six children were at the same developmental stage at the beginning of data collection. The MLUw of each participant is given in Table 13.

Table 12

Mean MLUw of the Participants

	n	*M*	*SD*	Minimum	Maximum	Skewness
score	6	5.80	0.45	5.2	6.5	0.48

Table 13

Proficiency of the Participants

Child	MLUw	LOR (months)
Chris	5.7	5
Lynn	5.6	5
Sammy	6.1	6
Jack	5.7	6
Hanna	5.2	6
Ann	6.5	6

4.3 Schedule of Data Collection

Prior to data collection, I had visited the class once a week for two months. The purpose was to develop rapport with potential participants and make them feel comfortable in the later

interviews. At each visit, I would obtain the instructor's permission and oral consent from individual participants before administering the tasks, which were carried out in a quiet classroom to avoid interruptions or shifts in the child's attention. Data were collected monthly over a period of seven months. Except for *Jack* and *Ann*, who had seven recordings, the remaining four children had eight recordings. Table 14 shows the date of administering tasks with each individual child.

Table 14

Date of Task Administration from April to November in 2011

Child	1st visit	2nd visit	3rd visit	4th visit	5th visit	6th visit	7th visit	8th visit
Chris	04/07	05/26	06/17	07/10	07/30	08/14	09/28	10/05
Lynn	04/02	05/25	06/10	07/09	08/05	09/20	10/02	11/09
Sammy	04/09	05/27	06/22	07/15	08/07	08/21	09/03	10/10
Jack	04/09	05/10	06/10	07/31	08/28	09/6	10/10	
Hanna	04/02	05/20	06/08	07/09	07/30	08/14	09/02	10/09
Ann	04/07	05/25	06/22	07/15	08/05	09/20	10/03	

4.4 Elicited Production Tasks

The purpose of these tasks is to provide discourse contexts for the use of target morphemes: third-person singular *–s*, regular past tense *–ed*, copula *be*, and auxiliary *be*. One 35-minute session of data collection per month was held with each individual in the school: approximately 25 minutes for the spontaneous production task and 10 minutes for the picture description task. The administration and the duration of these tasks were identical to all children. The teacher and the parents were not present at the time of the interviews. In some cases,

additional notes were taken during interviews. All the sessions were audio-recorded for later transcription and analysis. The descriptions and examples of these two tasks are as follows:

1. Spontaneous production task

Each individual child was engaged in a natural conversation with the investigator. The conversation covered general topics such as favorite activities, sports, cartoons, books, and daily school life. To make the child more engaged in the conversation, the topic of the conversation was different from person to person, depending on the interests or hobbies of the child. An example of the conversation is shown below:

Example

EXP: How's your Chinese class? What did you do? [past event]

CHI: We write [*wrote*] something, and I learn [*learned*] a new song today.

EXP: Do you like Chinese class?

CHI: No, I don't like it. It's boring [correct use of copula *be*]…

EXP: What do you like?

CHI: I like music class. I like singing and dancing.

EXP: That sounds interesting. What else do you like?

CHI: I like…I like…read book, and I like computer games.

EXP: Do you play computer games with you friends?

CHI: yes…

EXP: What does your friend like? [present tense, agreement]

CHI: ZR like [*likes*] play…huh…plants versus zombies. Chris like [*likes*] Lego.

2. Picture description task

Each individual child was provided with a set of pictures and asked to tell a story based on the pictures (Appendix B). The child was encouraged to provide detailed descriptions and to use complete sentences. For the last two sessions, the story book *Frog, where are you?* by Mercer Mayer was applied. An example of the picture description task is given as follows:

Example

EXP: I have a cartoon I would like to show you. It has a set of six pictures. Could you tell me a story based on these pictures? You can be as detailed as you like.

CHI: Grandmother was cutting flower. [use of auxiliary *be*]

CHI: She put flower together, but her dog eat [*ate*] them.

CHI: The grandmother was chasing the dog, want to hit him. [use of auxiliary *be*]

CHI: The dog was hungry and he want [*wanted*] to eat the flower. [use of copula *be*]

CHI: It's cloudy. The grandmother plant [*planted*] some flower.

EXP: What was grandma doing?

CHI: Plant the flower…[null subject, nonfinite verb]

EXP: What was that dog doing there?

CHI: He want **[***wants***]** to hide his bone.

EXP: And?

CHI: Run away

4.5 Data Transcription and Coding

There were a total of 46 transcripts: each child had eight transcripts, except for *Jack* and *Ann* who had seven transcripts (see Table 14). The transcripts were used to evaluate the development of English tense and agreement morphology. Accordingly, transcripts were coded for the correct use of the third-person singular *–s*, regular past tense *–ed*, auxiliary *be*, copula *be*, and present progressive *–ing* in obligatory contexts. Samples of transcripts from the first and last sessions are given in Appendix C.

4.5.1 Suppliance of Verb Inflections in Obligatory Contexts

Obligatory contexts are those contexts in which the morphemes should be present, which are determined as follows:

a. 3PSG *–s*: In a present habitual context, a verb with a third person singular subject should be marked with an *–s*. For example, the verb *walks,* in a sentence such as *He walks,* was coded for the correct use of third-person singular.

b. Regular past tense *–ed*: In a past temporal context, a verb should be marked with an *–ed* to denote a past event. For example, the verb *walked* in a sentence such as *He walked to school yesterday,* was coded for the correct use of regular past tense.

c. Auxiliary *be*: Sentences such as *I am working*, *S/He is working* and *You are working* were coded for the correct use of auxiliaries *am, is* and *are*.

d. Copula *be*: Sentences such as *I am a student*, *My name is David*, and *They are my best friends* were coded for the correct use of copula, *am*, *is*, and *are*.

e. Present progressive *–ing*: A verb denoting present progressive tense should be marked with an *–ing*. For example, the verb *working* in (c) was coded for the correct use of present progressive tense.

f. Two instances of overt use of target morphemes in obligatory contexts were excluded from analysis:
   (a) Contracted forms of copula and auxiliary *be* in formulaic expressions, such as '*That's good!'* and '*It's real*' were excluded.
   (b) If sentences are repeated in exactly the same form in an utterance, only the final instance was coded for the use of target morphemes.

4.5.2 Inter Rater Reliability

All the interviews were transcribed by the investigator and later checked by an English native speaker to ensure the accuracy of transcripts. Agreement between the two raters was assessed. If there was a disagreement, the two raters would discuss and try to determine, at the best of their abilities, whether or not the target morphemes were used by the participants. If the two raters failed to reach an agreement due to an uncertainty about the presence of target morphemes, the utterances would be excluded from coding. Overall, agreement on transcribing the overt use of target morphemes was high (~ 99%). There were only a few instances of exclusion due to inability to transcribe.

4.5.3 Tense and Agreement Errors

The transcripts were also coded for tense and agreement errors - the use of 3PSG *–s,* copula *be,* auxiliary *be, don't,* and *have* with inappropriate person, number or tense. The specific error types and examples are shown in Table 15.

Table 15

Tense and Agreement Errors

Errors	3PSG *-s*	Copula *be*	Auxiliary *be*	*don't*	*has/have*
Agreement	They likes…	These is…	They is…	She don't...	He have… I has…
Tense		It is cold. (past event)	He is playing. (past event)		

4.5.4 Related Syntactic Properties

Syntactic properties related to tense and agreement morphology were also analyzed. English is a [-null subject] language, so the subject has to be overtly present and has to be assigned a nominative case. Two syntactic properties were coded:

(a) Use of null subjects: Sentences such as '*Go to Florida*' and '*Eat lunch*' were coded as instances of use of null subjects.

(b) Case of subject pronouns: The use of nominative case (e.g., *I, he, she*) was coded as correct use of nominative case for subject pronouns, whereas the use of non-nominative case (e.g., *me, him, her*) was coded as incorrect use of case for subject pronouns.

4.6 Results

This section presents the results of the suppliance of copula *be*, auxiliary *be*, third-person singular –*s*, past tense forms, overt subjects and case of subject pronouns in obligatory contexts by the six Chinese child L2 learners. Data first shows the development of verb inflections of all children, and then moves on to discuss data on each individual's suppliance in each recording.

4.6.1 Suppliance of Copula *be*

The development of copula *be* of all children is presented in Figure 7, which shows the suppliance of copula *be* in each recording by individual child. As can be seen, all children demonstrated a high suppliance of copula *be.* In their first recording, *Lynn*, *Jack*, and *Ann* reached 100% accuracy. In the following recordings, copula *be* was occasionally omitted in the speech of *Lynn*, but overall accuracy was above 79%. A similar pattern was shown in *Jack*'s files with accuracy above 84% in all recordings. It should be noted that *Ann* never omitted copula *be* in any of her interviews. This suggests that *Ann* had acquired the copula *be*.

As compared to other children, suppliance was relatively low in *Chris'*s and *Sammy*'s first recording (i.e., accuracy both were 67%). This was attributed to fewer instances of the obligatory contexts which were used in the first recording. In that interview, there were only three instances of use of copula *be* in obligatory contexts. As a result, suppliance rate of copula *be* was reduced significantly even with one omission of copula *be*. In the subsequent interviews, instances of use of copula *be* in obligatory contexts increased and omission of copula *be* was low. Therefore, suppliance of copula increased markedly. Leaving out the first recording, the suppliance was above 92% in *Chris*'s and 70% in S*ammy*'s recordings (see Appendix D).

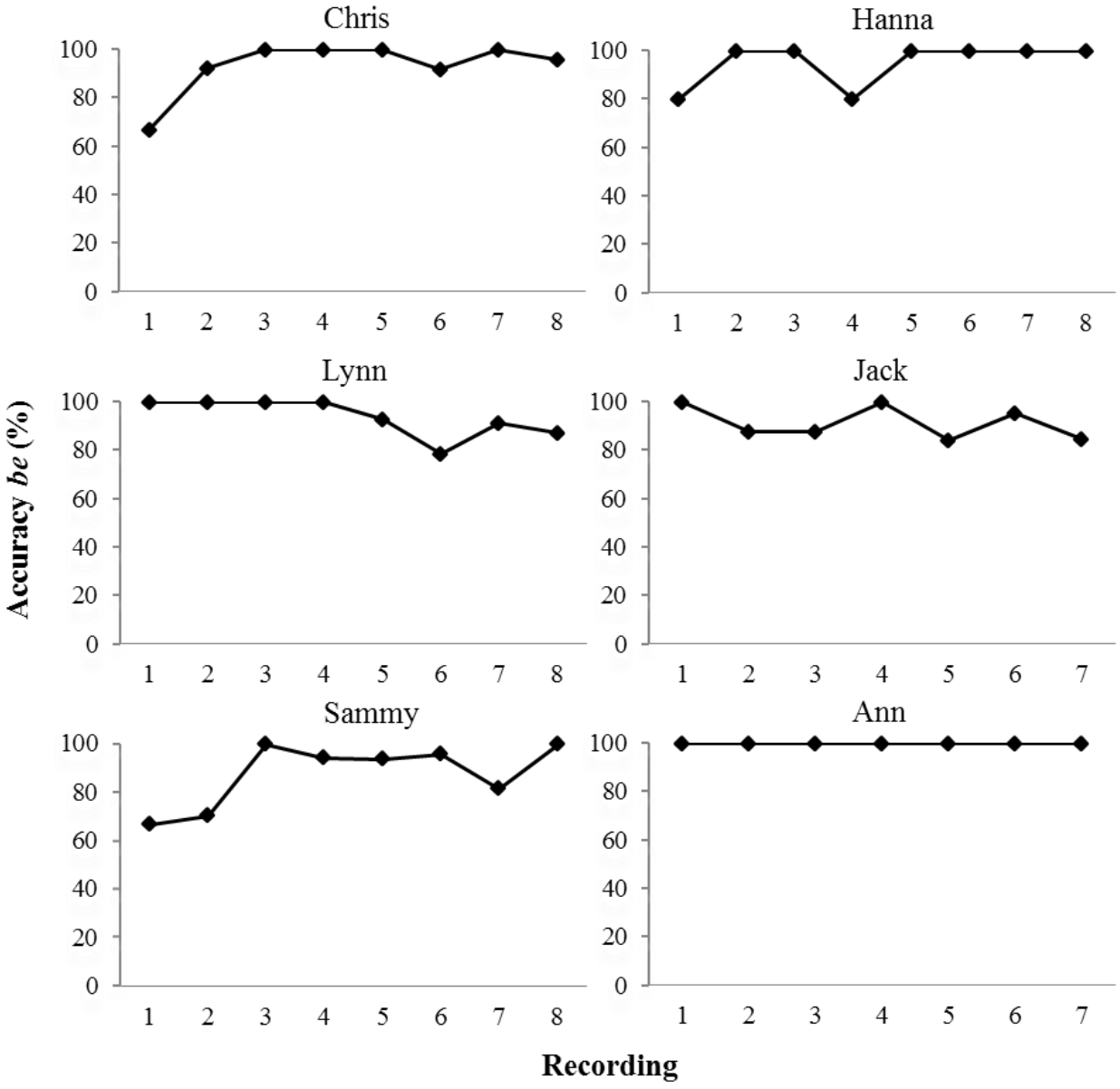

Figure 7. The suppliance of copula *be*

Table 16 shows the total number of use and omission of copula *be* by each child. The exact number of use and omission of copula *be* of each recording by each child is given in Appendix D.

Table 16

Total Number of Overt Use and Omission of Copula be

Child	Recording	Overt use	%	Range (%)	Omission	%	Range (%)
Chris	1-8	157/164	96	67 ~ 100	7/164	4	0 ~33
Lynn	1-8	96/106	91	79 ~ 100	10/106	9	0 ~ 21
Sammy	1-8	134/147	91	67 ~ 100	13/147	9	0 ~ 33
Hanna	1-8	47/50	94	80 ~ 100	3/50	6	0 ~ 20
Jack	1-7	121/137	88	84 ~ 100	16/137	12	0 ~ 16
Ann	1-7	253/253	100	~	0/253	0	~
Ave.			93			7	

Overall suppliance of copula *be* was remarkably high in the recordings of all children, ranging from 88% to 100%. The highest omission rate among all children was shown in *Jack*'s data (12%). A close examination into *Jack*'s speech samples reveals that a great amount of omission of copula *be* came from *Jack*'s last recording (i.e., 7 out of 16, see Appendix D). However, the high number of omission results from the misuse of the adjectives '*lost'* and '*close*' as a regular verb. It is commonly observed that L2 learners misidentify some parts of speech during the early stages of language acquisition. As is shown in (12), *Jack* misused the

adjective, *lost* and *close* as regular verbs, and omitted copula *be* several times. If those misuses were left out, *Jack*'s overall suppliance of copula *be* would increase significantly.

(12) a. But they *lost* in the cave. (Jack, file 7)

Tom Sawyer *lost* in the cave. (Jack, file 7)

b. It just *close* the Mississippi river. (Jack, file 7)

Overall, the six children were able to use the copula *be* consistently and productively from the beginning of the data collection. This suggests that the copula *be* had been acquired by the six children. Moreover, the overt use of copula *be* was not only used in simple sentences as '*There is a house'* (Sammy, file 3) and '*It is too late'* (Lynn, file 5), but also used in complex sentences, as shown in (13).

(13) a. I don't know where that is. (Sammy, file 4)

b. I didn't know why I am his sister. (Lynn, file 6)

c. I don't know what is his name. (Chris, file 6)

Research on child L2 acquisition has shown that the acquisition of copula *be* is rather early in comparison with other tense-related morphology. Haznedar (2001) reported suppliance rate of 96% by a Turkish-speaking child learning English. Likewise, Geckin and Haznedar (2008) reported suppliance rate of 81% by three Turkish-speaking children learning English. Ionin and Wexler (2002) investigated acquisition of verb inflections by 20 Russian-speaking children learning English and reported high suppliance of copula *be*, 84%. Likewise, the current

study shows a high suppliance of copula *be*, above 88% by the six Chinese-speaking children. Next I present data on the suppliance of auxiliary *be*.

4.6.2 Suppliance of Auxiliary *be*

As discussed in the previous section, copula *be* was used consistently and productively by all six children. Since auxiliary *be* has the same form as copula *be*, it was expected that the children's use of auxiliary *be* would be similar to use of copula *be*. However, auxiliary *be* is used with another verb in a sentence and exhibits grammatical functions such as aspect, tense, mood, and voice. In this section, I analyze the use of auxiliary *be* in the contexts of present progressive tense. The use of auxiliary *be* were coded in the following three contexts: overt use (i.e., *be* + V.-*ing*), omission (i.e., V.-*ing*), and bare stem (i.e., *be* + V.). Two types of errors were also coded: over-generalization and use of auxiliary *be* with inflected verb (e.g., **He is likes chocolate*.).

Let us first look at *Chris*'s data on the use of the auxiliary *be.* As is shown in Table 17, correct use of the auxiliary *be* with *–ing* morpheme (i.e., *be* + V.-*ing*) in progressive contexts is absent altogether in *Chris*'s speech samples. However, the use of auxiliary *be* with bare stem (i.e., *be* + V.) is shown in *Chris*'s file 2 through file 4, suggesting his attempt to use present progressive tense. Examples of bare stem construction are shown in (14). In progressive contexts, the use of bare stem '*be* + V.' is regarded as a nonfinite form of the '*be* + V.-*ing'* construction. In other words, the omission of *–ing* in the '*be* + V.' construction in present progressive tense is similar to the omission of *–s* in agreement or *–ed* in past tense. The use of the nonfinite form '*be* + V.*'* construction in *Chris*'s files reveals an early stage where morphological markings are frequently omitted.

(14) a. He is go back to China. (Chris, file 3)

b. Steve is leave here in June. (Chris, file 4)

Toward the end of data collection, *Chris* started to produce the finite auxiliary *be* in the use of '*be* + V.-*ing.'* There is an increase in the number of use in files 7 and 8. Meanwhile, the nonfinite form of auxiliary *be* in progressive contexts was still observed in the same period, suggesting a transition from a nonfinite stage to finite stage. Instances of the nonfinite form of auxiliary *be* in progressive contexts gradually decrease, and the finite form of auxiliary *be* gradually increases.

Table 17

The Use of Auxiliary be in Chris's Data

Files	*be* + V.-*ing*	%	V.-*ing*	%	*be* + V.	%
1	0/0	0	0/0	0	0/0	0
2	0/1	0	0/1	0	1/1	100
3	0/1	0	0/1	0	1/1	100
4	0/4	0	0/4	0	4/4	100
5	0/0	0	0/0	0	0/0	0
6	0/0	0	0/0	0	0/0	0
7	5/10	50	2/10	20	3/10	30
8	5/6	83	0/6	0	1/6	17
Total	10/22	45	2/22	9	10/22	45

The results of *Lynn*'s use of auxiliary *be* listed in Table 18 shows a large number of bare stem constructions (i.e., '*be* + V.'). From files 1 to 8, the bare stem constructions in progressive

contexts were consistently used (i.e., 12 out of 16 instances). In contrast, correct use of '*be* + V.-*ing'* construction in progressive contexts is only shown in file 4, file 5, and file 8, each with one instance only. Instances of the correct use of '*be* + V.-*ing*' construction are quite few, while the nonfinite form, '*be* + V.' constructions are prevalent throughout *Lynn*'s files. There is no developmental trend towards the end of data collection. *Lynn* seemed to remain at the nonfinite stage and failed to use the finite auxiliary *be* in present progressive contexts. Examples of *Lynn*'s use of *be* + V. construction in progressive contexts are given in (15).

(15) a. John was go to the city park. (Lynn, file 3)

b. Grandma was think something. (Lynn, file 5)

c. I was sleep…(Lynn, file 8)

Table 18

The Use of Auxiliary be in Lynn's Data

Files	*be* + V.-*ing*	%	V.-*ing*	%	*be* + V.	%
1	0/2	0	½	50	1/2	50
2	0/0	0	0/0	0	0/0	0
3	0/3	0	0/3	0	3/3	100
4	1/2	50	0/2	0	1/2	50
5	1/3	33	0/3	0	2/3	67
6	0/1	0	0/1	0	1/1	100
7	0/1	0	0/1	0	1/1	100
8	1/4	25	0/4	0	3/4	75
Total	3/16	19	1/16	6	12/16	75

Table 19 presents the performance on the use of auxiliary *be* in *Sammy*'s files. In contrast to *Chris*'s and *Lynn*'s files which showed a large number of uses of the nonfinite form '*be* + V.' constructions (i.e., 45% and 75% respectively), *Sammy*'s files demonstrate a large number of omissions of auxiliary *be* in present progressive contexts (i.e., V.-*ing* constructions). There are total 9 out of 21 instances in files 2 through 8. Some examples of bare V.-*ing* constructions are given in (16). Correct use of auxiliary *be* in progressive contexts is also observed in file 4, file 6, file 7, and file 8 with a total number of 8 out of 21 instances. Although the combined usage of nonfinite form - 'V.-*ing'* and '*be* + V.' constructions in the present progressive contexts is high (62%), *Sammy*'s speech samples demonstrate a relatively high percentage in the use of the finite form of auxiliary *be* (38%). *Sammy* used both finite and nonfinite forms of auxiliary *be* in present progressive contexts equally frequently, suggesting that the finite form of auxiliary *be* might be still developing.

(16) a. We should running around the playground. (Sammy, file 4)

b. He looking everywhere for the frog (Sammy, file 8)

c. They dog trying to climb the tree. (Sammy, file 8)

Table 19

The Use of Auxiliary be in Sammy's Data

Files	*be* + V.-*ing*	%	V.-*ing*	*%*	*be* + V.	*%*
1	0	0	0	0	0	0
2	0/2	0	2/2	100	0/2	0
3	0/1	0	1/1	100	0/1	0
4	2/5	40	2/5	40	1/5	20
5	0/1	0	0/1	0	1/1	100
6	3/3	100	0/3	0	0/3	0
7	1/3	33	1/3	33	1/3	33
8	2/6	33	3/6	50	1/6	17
Total	8/21	38	9/21	43	4/21	19

Hanna tended to talk much less compared to other children during the interviews. In *Hanna*'s data in Table 20, there are few instances of the use of auxiliary *be* in progressive contexts through her files. Only one token of 'V.-*ing'* and '*be* + V.' constructions is shown in files 1 and 2. *Hanna* produced one instance per file of the finite form '*be* + V.-*ing'* in present progressive contexts in files 3, 4 and 5. File 6 shows a slight increase in the use of bare stem '*be* + V.' construction in present progressive contexts. The last file shows two instances of correct use of '*be* + V.-*ing'*. Altogether there are only 12 instances in the use of auxiliary *be* in progressive contexts in *Hanna*'s files, making analysis of *Hanna*'s performance less valid and her pattern in the use of auxiliary *be* difficult to predict. This observation suggests that *Hanna* was still learning the finite auxiliary *be* in progressive contexts, as the finite and nonfinite forms of auxiliary *be* were used interchangeably through the period of data collection.

Table 20

The Use of Auxiliary be in Hanna's Data

Files	*be* + V.-*ing*	%	V.-*ing*	%	*be* + V.	%
1	0/1	0	1/1	100	0/1	0
2	0/1	0	0/1	0	1/1	100
3	1/1	100	0/1	0	0/1	0
4	1/1	100	0/1	0	0/1	0
5	1/2	50	1/2	50	0/2	0
6	0/3	0	0/3	0	3/3	100
7	0/1	0	0/1	0	1/1	100
8	2/2	100	0/2	0	0/2	0
Total	5/12	42	2/12	17	5/12	42

The next data set shows the use of auxiliary *be* in progressive contexts in *Jack*'s files. As can be seen in Table 21, the use of auxiliary *be,* finite and nonfinite forms are absent altogether in file 1 through file 4. An attempt to use present progressive tense was not observed until file 5 which contains two instances of the 'V.*–ing'* construction (e.g., *I just sit and building it*). In *Jack*'s last two files, the finite form of '*be* + V.*ing*' construction was used only once in each file. Though finite auxiliary *be* did finally appear in *Jack*'s speech production, it was seldom used. The total number of uses of finite auxiliary *be* is only 2 out of 8 instances (25%), while percentage in the use of both 'V.*–ing'* (38%) and '*be* + V.' (38%) constructions is greater than that of the '*be* + V.-*ing'* construction.

Table 21

The Use of Auxiliary be in Jack's Data

Files	*be* + V.-*ing*	%	V.-*ing*	%	*be* + V.	%
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0/2	0	2/2	100	0/2	0
6	1/4	25	¼	25	2/4	50
7	1/2	50	0/2	0	1/2	50
Total	2/8	25	3/8	38	3/8	38

As shown in Table 22, *Ann*'s files show a consistent use of auxiliary *be* in present progressive contexts. Similar to her performance in the use of copula *be*, *Ann* demonstrated a high suppliance of auxiliary *be* in the present progressive contexts (93%). In her first two files, *Ann* had reached 100% suppliance of the '*be* + V.*ing'* construction. The range of suppliance was between 71% and 100%. There were only five instances of omission of auxiliary *be* (7%). In addition, *Ann* never used the nonfinite form of auxiliary *be* (i.e., '*be* + V.' construction). *Ann*'s files showed a consistent and productive use of the finite form of auxiliary *be* in present progressive contexts from file 1 through file 7, suggesting that *Ann* has passed an early tenseless stage, and that auxiliary *be* has been acquired.

Table 22

The Use of Auxiliary be in Ann's Data

Files	*be* + V.-*ing*	%	V.-*ing*	*%*	*be* + V.	*%*
1	5/5	100	0/5	0	0/5	0
2	12/12	100	0/12	0	0/12	0
3	5/7	71	2/7	29	0/7	0
4	10/10	100	0/10	0	0/10	0
5	11/12	92	1/12	8	0/12	0
6	15/16	94	1/16	6	0/16	0
7	13/14	93	1/14	7	0/14	0
Total	71/76	93	5/76	7	0/76	0

4.6.2.1 Errors in the Use of Auxiliary *be*

In addition to different constructions of auxiliary *be* in the progressive contexts, two types of errors in the use of auxiliary *be* were also analyzed. The first error type is overgeneralization. This is misuse of auxiliary *be* in contexts where it is not required. The second error type is the '*be* + inflected V.' error. This is misuse of *be* with another inflected verb. Table 23 shows the number of misuses and percentages in the two types of errors observed in the speech production of each child. Errors in the overgeneralization of auxiliary *be* are greater than errors in the misuse of auxiliary *be* with an inflected verb in each individual child's files, ranging from 56% to 100%. As shown in the examples (17), auxiliary *be* tended to be overgeneralized with another lexical verb. Different from the bare stem '*be* + V.' construction, the overgeneralization of auxiliary *be* was not used to describe present progressive events.

(17) a. Many land is all grow grass. (Chris, file 7)

b. Mr. Darr every day is give everybody a lot of homework. (Lynn, file 2)

c. They are smell not really good. (Sammy, file 4)

d. I'm go to the Urbana Free Library. (cf. '*I went to the…*') (Hanna, file 3)

e. It's talk about the cave. (Jack, file 7)

f. That is cost my allowance. (Ann, file 4)

Table 23

Errors in the Use of Auxiliary be

Child	Files	Overgeneralization	%	be + inflected V.	%
Chris	2 – 8	30/31	97	1/31	3
Lynn	1 – 8	68/72	94	4/72	6
Sammy	2 – 8	7/9	78	2/9	22
Hanna	3 – 9	5/9	56	4/9	44
Jack	2 – 7	21/25	84	4/25	16
Ann	3 & 7	2/2	100	0/2	0

In addition to the overgeneralization of auxiliary *be* with another lexical verb, auxiliary *be* was misused as the auxiliary verb *do/does* to form negative sentences. As shown in (18a) – (18d), almost all of the children had overgeneralized the auxiliary *be* as the auxiliary verb *do/does*. There were also instances where the overgeneralized *be* was used together with the auxiliary verb *do*, as shown in the following examples (18e) and (18f).

(18) a. Jerry is [cf. *does*] not very like Star War. (Chris, file 4)

b. I'm [cf. *do*] not really think is Saturday. (Lynn, file 4)

c. I'm [cf. *did*] not go to the St. Louis. I'm not go to arch. (Jack, file 3)

d. I'm [cf. *did*] not play the iPad. (Hanna, file, 4)

e. I'm really don't like to sing babyish song. (Sammy, file 6)

f. I'm don't go to travel. (Chris, file 4)

As compared to errors in the overgeneralization of auxiliary *be*, errors in the '*be* + inflected verb' are few. The total number of '*be* + inflected verb', ranging from 0% to 44%, never exceeds four instances in each individual child's files. Moreover, the '*be* + inflected verb' error is largely made with past tense irregular verbs, as shown in (19a) - (19d). There is only one instance of use of auxiliary *be* with the 3PSG –*s* marking in *Jack*'s file, showing in (19e).

(19) a. They are went to forest. (cf. '*They went to the forest.*') (Chris, file 7)

b. One dog was came. (Lynn, file 4)

c. I was forgot. (Sammy, file 5)

d. The boy is fell down and the dog. (Hanna, file 7)

e. The woman is likes to her. (Jack, file 4)

Meanwhile, errors in the use of auxiliary *be* in children's speech production are sporadic and random. The same lexical verb was initially used correctly with inflections, but was later misused with an overgeneralized *be*. The examples below are taken from *Lynn*'s file 6. *Lynn* first correctly produced the past tense irregular verb '*gave*' in narrating a past event as in (20a). She

then overgeneralized *be* with the same inflected verb '*gave*' as in (20b), and later she correctly used the same finite verb as in (20c).

(20) a. My mom gave money. (file 6)

b. So today I was gave my class. (file 6)

c. I gave my class two dime. (file 6)

Overall data on the errors in the use of auxiliary *be* demonstrate that first, there are more errors in the overgeneralization of auxiliary *be* than there are errors in the use of auxiliary *be* with an inflected verb. The auxiliary *be* is not only overgeneralized with another lexical verb, but also misused as the auxiliary verbs *do/does* to form negative sentences. Second, errors in the '*be* + inflected verb' are few and random. The same lexical verb can be used in correct finite form as well as be misused with an overgeneralized *be*. Moreover, in the acquisition of English tense, child L2 learners seem to occasionally misuse the auxiliary *be* as a tense marker. As is shown in the data, auxiliary *be* is more often misused with a nonfinite verb than with an inflected verb, of which there are rather few in the data.

4.6.3 Suppliance of Third-Person Singular –*s*

I have presented the suppliance of copula *be* in section 4.6.1 and the suppliance of auxiliary *be* in section 4.6.2. Results show that the suppliance of copula *be* is remarkably high in all children, while the suppliance of auxiliary *be* in present progressive contexts is relatively low. Previous research on child L2 learners has shown that copula *be* is acquired earlier than other tense markings, and suggests that the acquisition of copula *be* is a reflection of [Infl] projection

in syntactic representation. In this section, I present results of suppliance of another morphological marking, the third-person singular *–s* (3PSG *-s*) by the six children.

Figure 8 shows the development of 3PSG *–s* by the six children. Detailed results will be discussed later. As shown in Figure 8, the overall suppliance of the 3PSG *–s* in obligatory contexts is rather inconsistent and shows fluctuations throughout the recordings. None of the children ever reached 100% suppliance of 3PSG *–s* during the period of data collection. In *Chris*, *Sammy*, *Hanna*, and *Jack*'s files, there are at least three recordings showing 0% suppliance of 3PSG *–s*. In *Lynn*'s files, overt 3PSG *–s* is completely absent, resulting in 0% suppliance in all her recordings. The highest suppliance of 3PSG *–s* is 86% as seen in *Ann*'s fifth recording. Toward the end of data collection, *Chris*'s and *Sammy*'s files show a gradual increase in the suppliance of 3PSG *–s*. However, data of the rest of participants fail to demonstrate any developmental trend in the suppliance of 3PSG *–s*. Overall, the 3PSG *–s* was not productively used by the six children throughout the recordings.

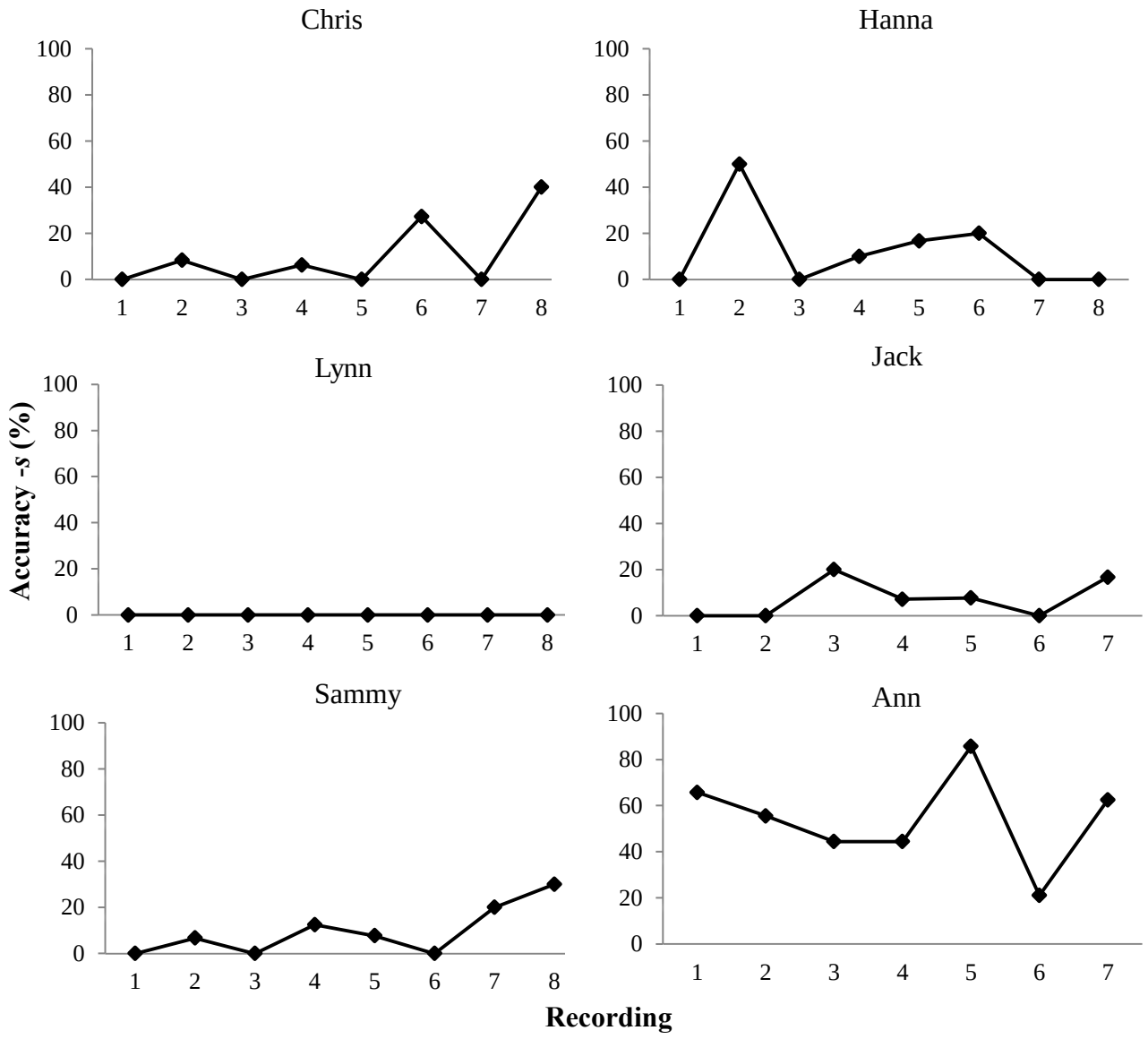

Figure 8. Suppliance of third-person singular –*s*

In this section, I report the results of use of 3PSG *–s* in obligatory contexts by individual participants. Examples of overt use and omission of 3PSG *–s* are shown in (21). As can be seen, 3PSG *–s* was not consistently and productively used. Omission and overt use of 3PSG *–s* can be observed in the same utterance by the same child.

(21) a. He a little *like* computer game. He *like* Lego. I like Lego, too. (Chris, file 3)

b. He *like* flower, and he *eat* flower. (Lynn, file 2)

c. She *loves* to play computer. She *love* to sing. (Sammy, file 4)

d. One day Mary *walks* her garden. She *think* here not beautiful. (Hanna, file 4)

e. I don't know he *like* what. I think he *like* juice. (Jack, file 1)

f. She *likes* lots of things. She mostly *like* lollipop or chocolate. (Annie, file 5)

Table 24 shows the total number of use and omission of 3PSG *–s* by each child. The exact number of use of and omission of 3PSG *–s* of each recording by each child is given in Appendix E. In *Chris's* data, the average suppliance of 3PSG *–s* is low (9%) and omission of 3PSG *–s* is consistently high, ranging from 60% to 100%. Regardless of number of obligatory contexts, the instance of overt use of 3PSG *-s* is less than three in every recording (see Appendix E). In *Lynn*'s data, overt use of 3PSG *–s* was completely absent. The speech samples of the other five participants contain at least few instances of overt use of 3PSG *–s*. However, this is not the case for *Lynn*. She is the only participant who completely omitted the agreement marking *–s* in a total of 67 obligatory contexts. While the overt use of 3PSG *–s* is absent altogether in *Lynn*'s files, the accuracy in the use of copula *be* is high, ranging from 79% to 100% (see Table 16). This drastic discrepancy in the suppliance of 3PSG *–s* and copula *be*, as related to the

functional projection of [Infl], will be discussed later in detail. Similar to *Chris*' performance, *Sammy*'s omission rate is high, ranging from 70% to 100%, whereas the average over use of 3PSG *–s* is only 10%. The suppliance of 3PSG *-s* does not exceed three instances in any recording. Although fluctuation was observed throughout *Sammy*'s recordings, there seems to be a gradual development after recording 6. Suppliance increases to 20% and 30% in recording 7 and 8 respectively (see Appendix E). However, further recording would be required to confirm a steady development in *Sammy*.

Comparing with the other children, *Hanna* was quiet and tended to talk less during the interviews. Therefore, in *Hanna*'s files, the total number of instances of morphological markings *-s, -ed,* or *be* in obligatory contexts was much lower than other children's. In her recordings, the use of overt 3PSG *–s* is always fewer than two, resulting in an average suppliance of 10%. Although the suppliance in recording 2 is 50%, this percentage is calculated based on only two instances of obligatory contexts and should not be taken as evidence for an increase in the use of 3PSG *-s*. Likewise, in *Jack*'s data, the omission of 3PSG *–s* was considerably high, ranging from 80% to 100%. Regardless of the number of obligatory contexts, the instances of use of 3PSG *–s* never exceed three. Only six instances of overt use were coded in *Jack*'s files, resulting in a low average suppliance of 3PSG *-s* (8%). *Ann* demonstrated the best performance among all six participants. *Ann* is the only one child whose suppliance of 3PSG *–s* ever exceeds the omission in speech samples (i.e., recordings 1, 2, 5, and 7). The suppliance ranges widely from as low as 24% to as high as 86%. The average is 56% which is significantly higher than the other participants. In spite of being slightly inconsistent as were the others, *Ann*'s files show the highest suppliance of 3PSG *–s* among all the participants.

Table 24

Total Number of Overt Use and Omission of 3PSG -s

Child	Recording	Overt use	%	Range (%)	Omission	%	Range (%)
Chris	1-8	7/78	9	0 ~ 40	71/78	91	60 ~ 100
Lynn	1-8	0/67	0	~	67/67	100	~
Sammy	1-8	8/80	10	0 ~ 30	72/80	90	70 ~ 100
Hanna	1-8	5/50	10	0 ~ 50	45/50	90	50 ~ 100
Jack	1-7	6/77	8	0 ~ 20	71/77	92	80 ~ 100
Ann	1-7	57/101	56	24 ~ 86	44/101	44	14 ~ 76
Ave.			16			84	

In summary, the suppliance of 3PSG *–s* in obligatory contexts was not used consistently and productively by the six participants. Fluctuation was seen throughout the recordings in five of the six participants, with the exception of *Lynn* who did not show any use of 3PSG *–s* at all. *Lynn*'s development is somewhat slower in comparison with other children. The highest average suppliance is shown in the speech samples of *Ann* (56%). Average suppliances of the 3PSG *–s* of the remaining four participants are equally low (8% to 10%). Overall, the results suggest that the six child L2 learners had not fully acquired the 3PSG *–s* by the end of data collection.

4.6.4 Suppliance of Past Tense Morphology

This section presents data on the use of past tense morphology: regular past form *–ed* and irregular past forms. Figure 9 shows the acquisition of regular past *–ed* (●) and irregular past forms (○) by the six participants. There is a noticeable discrepancy between the suppliance of regular *–ed* and irregular forms, showing that the use of regular *–ed* is lower than the use of

irregular forms. Suppliance of regular past form *–ed* is 0% in all the first interviews and remains low in most of children. *Chris* failed to produce any regular past form *–ed* in all his recordings. Similarly, *Lynn*, *Sammy*, and *Hanna* demonstrated 0% in the use of regular *–ed* in their early recordings; however, there seems to be a slight increase in their suppliance of regular *–ed* in the last couple of interviews. While *Ann*'s suppliance of regular *-ed* shows greater fluctuation, she demonstrated high percentages in recordings 3, 6 and 7. Overall the range of suppliance of regular past form *–ed* was from 0% to 61%.

On the other hand, irregular past forms were used more productively than regular past form *–ed*. The range of suppliance of irregular past forms is from 0% to 82%. Suppliance of irregular past forms was observed in all participants, except for *Chris*'s recording 2 and 3, showing 0% suppliance. There seems to be an increase in some participants toward the end of data collection, suggesting a development over the course of seven months. The degree of development also varies from participants to participants and is most apparent in *Jack*. The exception is *Ann* whose suppliance of irregular past forms is consistently high (average 70%) throughout the recordings.

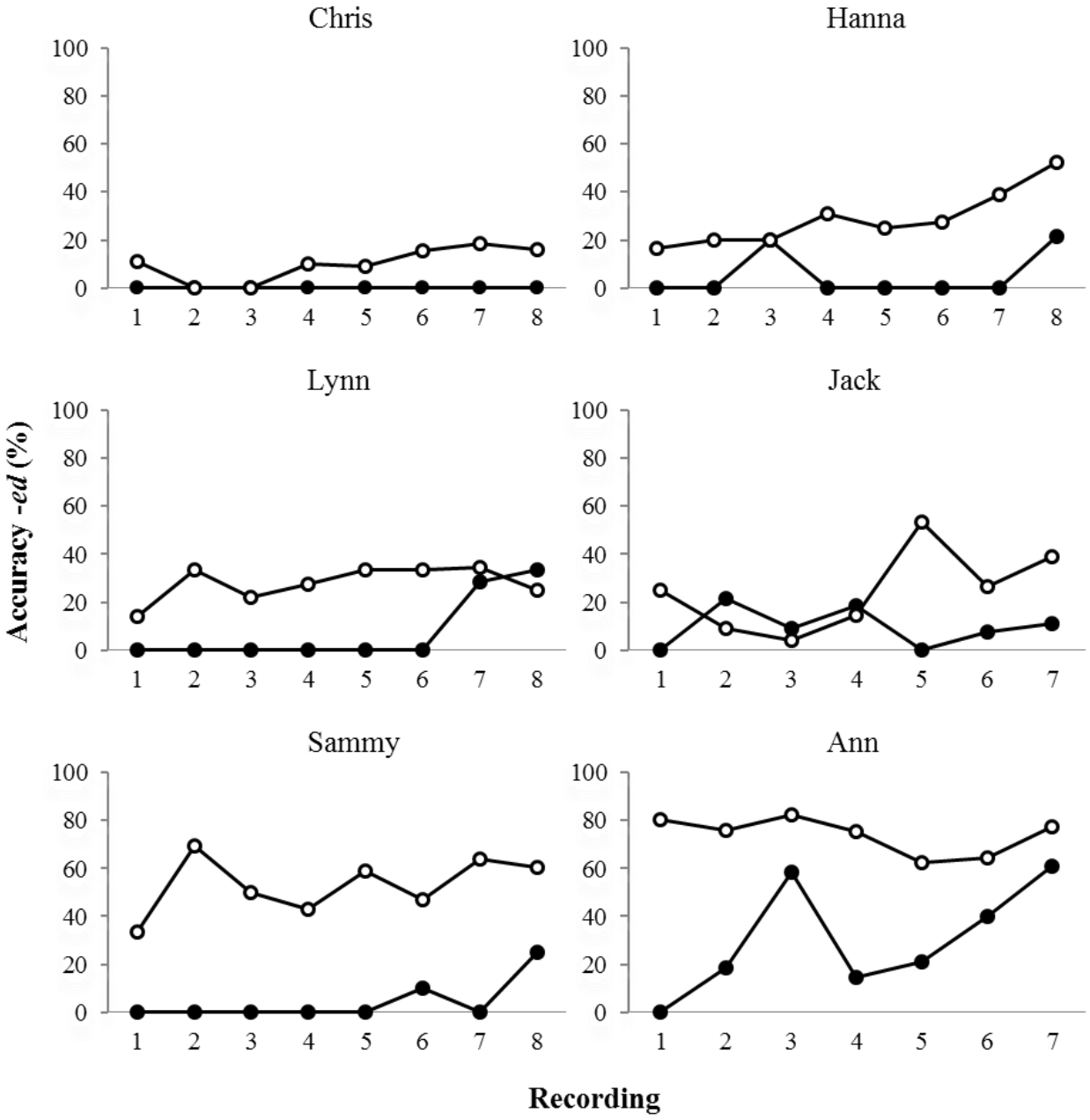

Figure 9. The suppliance of past tense morphology

This section reports the results of use of past tense morphology in obligatory contexts by individual participants. Examples of use of past tense morphology are given in (22). Similar to 3PSG *–s*, the suppliance of past tense morphology, both regular and irregular forms are low and inconsistent in the speech production of the six children.

(22) a. This weekend I do [*cf. did*] my homework and play [*played*]. (Chris, file 3)

b. He take [*cf. took*] the bike, *gave* the person money. (Lynn, file 3)

c. My mom *said* she want [*cf. wanted*] to eat some ice cream. (Sammy, file 5)

d. No, I just *stayed* at home, and watch [*cf. watched*] TV. (Hanna, file 4)

e. I go [*cf. went*] to a mall. I buy [*cf. bought*] two Lego. (Jack, file 1)

f. We stay [*cf. stayed*] there and we *went* to mall and buy clothes. (Ann, file 4)

Table 25 shows the total number of use and omission of regular past *-ed* and irregular past forms by each child. The exact number of use of and omission of past tense morphology of each recording by each child is given in Appendix F. In *Chris*'s data, the use of regular past form *–ed* in obligatory contexts is absent altogether, indicating 0% suppliance in all of *Chris*'s recordings. In contrast, suppliance of irregular past form is slightly higher than that of regular form *–ed*. Average suppliance of irregular form is 11% (15 in 138 instances), covering a range from 0% to 19%. Although the overall suppliance of irregular form is greater than that of the regular form *–ed*, the discrepancy is not conspicuous. Overall, regular past form *-ed* was not used at all in *Chris*'s speech production. Only irregular past form was used by *Chris.* The suppliance of regular past form *–ed* are all 0% in *Lynn*'s first six recordings (Appendix F). An improvement is seen in recording 7 (29%) and 8 (33%). Average suppliance of regular past form *–ed* is 15% (8

in 53 instances), covering a range from 0% to 33%. The use of irregular form is greater in *Lynn*'s speech samples right from the beginning but fluctuates slightly throughout the recordings. Overall, *Lynn* used irregular past forms more productively than regular past forms, and the difference between regular form *–ed* and irregular past form is as high as 33%. In *Sammy*'s data, the suppliance of regular past form *–ed* is absent in almost all recordings except for recording 6 (10%) and 8 (25%), yielding an average suppliance of 7% (5 in 71 instances) with a range from 0% to 25%. In contrast, the suppliance of irregular past forms is significantly higher in all her recordings, giving an average suppliance of 57% (100 in 157 instances) with a range from 33% to 69%. *Sammy*'s file reveals a striking difference between the use of regular form *–ed* and irregular forms. The discrepancy can be greater than 60%, as seen in recording 2 and 7.

Likewise, *Hanna's* overt use of regular form *–ed* is absent in the majority of the recordings, except for recording 3 (20%) and recording 8 (21%). Average suppliance of regular form *-ed* is 9% (4 in 45 instances) with a range from 0% to 21%. Similar to other participants, *Hanna* also performed better in use of irregular past forms. Suppliance of irregular past forms is relatively productive in *Hanna*'s speech samples. Average suppliance of irregular past forms is 33%, with a steady increase from 17% in the first recording to 53% in the last recording. As mentioned previously, *Hanna* was quieter than other participants. Therefore, the total numbers of instances in both past tense morphology (45 regular and 103 irregular) in *Hanna*'s speech samples are the lowest among all participants. In *Jack*'s data, there is no significant discrepancy between regular and irregular past forms in the first four recordings. The difference becomes more apparent only from recording 5. Average suppliance of regular form *–ed* is 13% (6 in 69 instances), ranging from 0% to 21%, whereas the average suppliance of irregular past forms is 25% (38 in 152 instances), ranging from 4% to 53%. Interestingly in recording 2, 3 and 4, the

suppliance of regular form *–ed* is higher than that of irregular form, which has not been seen in any other participants (see Figure 9). *Ann* once again demonstrated the highest suppliance of both regular and irregular past forms, among all participants. Average suppliance of regular form *–ed* is 33% (41 in 130 instances) with a wide range between 0% to 61%. It is surprising that *Ann* produced 0% suppliance in her first recording but 61% in her last recording. This is the highest suppliance of regular form *-ed* in all participants. In terms of the irregular past forms, the suppliance is consistently high with an average of 74% (239 in 325 instances) and with a steady range between 62% and 82%. Clearly, *Ann* used the irregular past forms more productively and consistently in her speech production than her use of regular form *-ed*. It is also important to note that *Ann* not only produced the highest suppliance in past tense morphology, but also demonstrated the highest total numbers of use in her speech samples. The combined number of instances of regular and irregular past forms is 485, which is nearly double that of the other participants.

Table 25

Total Number of Overt Use and Omission of Past Tense Morphology

Child	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Chris	1-8	0/69	0	69/69	100	15/138	11	123/138	89
Lynn	1-8	8/53	15	45/53	85	51/171	30	120/171	70
Sammy	1-8	5/71	7	66/71	93	100/174	57	74/174	43
Hanna	1-8	4/45	9	41/45	91	34/103	33	69/103	67
Jack	1-7	9/69	13	60/69	87	38/152	25	114/152	75
Ann	1-7	41/130	32	89/130	68	239/325	74	86/325	26
Ave.			13		87		38		62

4.6.5 Tense and Agreement Errors

In the previous sections, I presented the suppliance of verb inflections. This section analyzes tense and agreement errors in the use of 3PSG *–s*, regular past form *–ed*, copula *be*, and auxiliary *be* by the six children. Agreement errors in the use of 3PSG *–s* are those used with a subject other than third person singular. Examples of errors in the use of 3PSG *–s* are shown in (23). Errors in the use of copula and auxiliary *be* are those used with inappropriate person, tense, and number. Results show that errors in the use of copula and auxiliary *be* are largely made with inappropriate number and tense, for example, the use of *is* in describing a past event. Examples of errors in the use of copula and auxiliary *be* are given in (24).

(23) a. They sees the frog. (Chris, file 7)

b. I likes Lego Star Wars. (Lynn, file 4)

c. I talks more. (Sammy, file 2)

(24) a. It is [*was*] a day at sea. (Sammy, file 5)

The line is [*was*] so long. (Ann, file 2)

Flowers is [*are*] beautiful. (Hanna, file 4)

This two is [*are*] whole set. (Chris, file 5)

b. My dad is [was] taking pictures. (Ann, file 2)

We are [were] going to the theater. (Hanna, file 7)

These two wolfs is [*are*] coming to the train. (Chris, file 8)

Table 26 shows percentages in the tense and agreement errors, which are computed by number of errors over all instances of overt use. As can be seen, there are no more than four errors in the use of 3PSG *–s*. However, due to low number of overt use of 3PSG *–s*, percent error increases significantly even with a few instances of errors. As shown in *Lynn*'s data, there are only two instances of overt use of 3PSG *–s*, while both instances are used incorrectly with inappropriate person, *I*, resulting in a high percentage of error in the use of 3PSG *–s* (100%). The average percentage of errors in the use of 3PSG *–s* by all children is 31% with range from 0% to 100%. The most noticeable result in Table 26 is that the percent error in regular past tense *–ed* is 0% - no error was made by any participant. Errors in the use of copula *be* are more than that of auxiliary *be*, while both are largely made with inappropriate tense and number. There is no error in the use of copula and auxiliary *be* with incorrect person. The average of percent error is 11%

and 8% respectively. Overall, the highest percent error is found in 3PSG *–s*, and the lowest in regular past form *–ed.*

Table 26

Tense and Agreement Errors

Child	3PSG *-s*	%	Regular *-ed*	%	Copula *be*		%	Auxiliary *be*	%
					tense	number			
Chris	4/11	36	0/0	0	6/173	10/173	9	1/23	4
Lynn	2/2	100	0/8	0	3/109	10/109	12	0/18	0
Sammy	3/11	27	0/5	0	12/156	10/156	14	0/21	0
Hanna	1/6	17	0/4	0	0/53	6/53	11	2/14	14
Jack	0/6	0	0/9	0	3/135	11/135	10	2/10	20
Ann	4/61	7	0/41	0	18/278	7/278	9	10/86[a]	12
Ave.		31		0			11		8

Note. [a]9 out of 10 were made with tense error.

4.6.6 Overt Subjects and Pronoun Subject Case

In section 2.1, I discussed the RI phenomenon, which shows a dependent relationship between the use of verb forms and the use of overt subjects and nominative case assignment in L1 acquisition. To understand how the acquisition of verb inflections and syntactic properties are related to each other in child L2 acquisition, this section examines the suppliance of 3PSG *–s* and the use of overt subjects and case assignment of subject pronoun position by the six child L2 learners.

Table 27 presents the use of null subjects, overt subjects and non-nominative subjects. As can be seen, there are relatively few instances of null subjects. Subjects are largely overt, and

consistently produced, ranging from 94% to 100%. Examples of use of null subjects are given in (25). With regard to pronoun subject cases, they are all appropriately assigned nominative case. There are no instances of misuse of non-nominative subjects in all children's speech production. In *Hanna, Jack,* and *Ann*'s data, suppliance of overt and nominative subjects is 100%, while suppliance of verb inflections remains low at the same time.

(25) a. Winter break… [*cf. I*] go to Florida. (Chris, file 2)

b. …because before [*cf. we*] have two teacher. (Lynn, file 7)

c. I just don't know…[*cf. she*] want to play computer. (Sammy, file 2)

Table 27

Use of Subjects and Case Marking

	Null subjects	Overt subjects (nominative & lexical)	Non-nominative subjects (*me, him, her*)
Chris	2/78	76/78 (97%)	0
Lynn	2/67	65/67 (97%)	0
Sammy	5/90	85/90 (94%)	0
Hanna	0/50	50/50 (100%)	0
Jack	0/77	77/77 (100%)	0
Ann	0/103	103/103 (100%)	0

The results for the use of overt 3PSG –*s* and the use of overt subjects are shown in Table 28. In the instances of use of overt 3PSG –*s,* overt subjects are used 100 % of the time (83 in 83 instances). There is no instance of use of overt 3PSG –*s* in conjunction with null subjects. When 3PSG –*s* is omitted, overt subjects are still used at considerably high percentage (98%). Null

subjects are only coded 9 times in the instances of omission of 3PSG *–s* (2%). This result reveals that overt subjects are consistently produced by the participants and independent of the use of overt morphology, suggesting that the use of overt morphology is not developmentally related to the use of syntactic properties, χ^2 (1, N = 6) = 2.05, p = .15.

Table 28

Use of 3PSG –s and Use of Subjects

	3PSG -*s*	
	Overt	Omission
Overt subjects	83	363
Null subjects	0	9
% Overt subjects	100%	98%

Total = 455, χ^2 = 2.05, p = .15

4.6.7 Summary of Suppliance of Verb Inflections

The percent suppliance of copula *be*, 3PSG *–s*, regular past *–ed*, and irregular past forms are present in Table 29. The averages, ranging from high to low, are 93% (copula *be*), 38% (irregular past forms), 16% (3PSG *–s*), and 13% (regular past *–ed*). Copula *be* is used more productively and consistently than the other tense-related morphology by all the participants. When the two past tense forms are compared, the suppliance of irregular past forms (38%) is three times higher than the suppliance of regular past *–ed* (13%). It is important to note that the group performance in the use of verb inflection is identical to individual performance. Individual suppliance of copula *be* is significantly higher than that of irregular past forms, 3PSG *–s*, and regular past *–ed*. This result suggests that affixal morphology (3PSG -*s* and regular *–ed*) requires

more time to be fully acquired than suppletive morphology (copula *be*), which is acquired relatively earlier. In summary, the results demonstrate that tense and agreement morphology was not used productively by the Chinese child L2 participants; however, during the same period of time, their use of related syntactic properties was already proficient.

Table 29

The Suppliance of Suppletive and Affixal Morphology

	Copula *be* (%)	3PSG *–s* (%)	Regular *–ed* (%)	Irregular forms *(%)*
Chris	96	9	0	11
Lynn	91	0	15	30
Sammy	91	10	7	57
Hanna	94	10	9	33
Jack	88	8	13	25
Ann	100	56	32	74
Ave.	93	16	13	38

CHAPTER 5

DISCUSSION

5.0 Introduction

Inconsistent use of verb inflections has been observed in both L1 and L2 acquisition. In the former, the acquisition of verb inflections is developmentally related to the acquisition of syntactic properties, such as the use of overt subjects, nominative case assignment of pronoun subjects, and verb movement. Nevertheless, research on L2 acquisition provides evidence in support of an independent relationship between the acquisition of morphology and syntax. This study provides further evidence for the Separation Hypothesis in the syntax-before-morphology position by examining data on six Chinese child L2 learners of English. The acquisition of verb inflections and syntactic competence was observed over time from an early stage and further compared with child L2 learners from this study with child L1 and adult L2 learners from the literature in this field. Two research questions were raised in this study:

1. Is there a developmental relationship between the use of tense/agreement morphology and related syntactic properties in child L2 learners in an early stage of language acquisition?

2. Is child L2 acquisition more like child L1 or adult L2 acquisition in the acquisition of verb inflections with syntactic consequences?

The Separation Hypothesis claims that (1) abstract properties can be present in the interlanguage grammar, even in the absence of overt morphology in surface structure, and (2) syntax triggers the acquisition of morphology (e.g., Haznedar & Schwartz, 1997; Ionin & Wexler, 2002; Prévost & White, 2000).

Based on the Separation Hypothesis, I have made the following predictions for the present study:

1. Syntactic development will precede morphological development. Participants will demonstrate the use of overt subjects and nominative case assignment before the use of overt morphology, such as third-person singular *-s* and regular past *–ed* in the speech production.

2. Syntactic development will be independent of morphological development. Syntactic properties will be used consistently during the same period in which verb inflections are still largely omitted.

3. If the predictions (1) and (2) are borne out, it will suggest that child L2 acquisition is more like adult L2 acquisition,

5.1 Summary of Findings

This section summarizes findings of this study on the use of verb inflections - 3PSG *–s*, regular past *–ed*, copula and auxiliary *be* - and the use of related syntactic properties - the use of overt subjects and case of pronoun subjects.

Affixal morphology (3PSG *–s* and regular past form *–ed*) was largely omitted in the speech production of the six Chinese child L2 participants. In several cases, the suppliance of 3PSG *–s* and regular past tense *–ed* were completely absent, particularly in the initial recordings. Developments in the use of 3PSG *–s* and regular past *-ed* were difficult to see because of fluctuation throughout the recordings. However, all participants were able to produce irregular past forms relatively well at the very beginning of data collection. The suppliance of irregular past forms was consistently higher than that of regular past tense-*ed* in all the participants. The other tense-related marker, the suppletive morphology copula *be*, was also used productively and was coded in every recording. High suppliance was demonstrated by all the children in their first interviews, and was maintained throughout the recordings. By comparison, the suppliance of auxiliary *be* was relatively low. Although auxiliary *be* shares the same form as copula *be*, the former was used less productively in the early stages. Omissions of auxiliary *be* (i.e., V.-*ing*) and *–ing* morpheme (i.e., *be* + V.) in the present progressive were frequently observed in the participants' speech production.

Tense and agreement errors occurred much less frequently than omission. Misuse of 3PSG *–s* was observed in no more than four instances, and misuse of regular past tense *–ed* was never recorded. Misuse of copula *be* consisted mostly of inappropriate tense, such as using *is* to describe a past event. Similarly, misuses of auxiliary *be* largely consisted of inappropriate tense use. In addition, auxiliary *be* was occasionally overgeneralized with another regular verb or used as *do/does* to form a negative question (e.g., I'm [*cf. do*] not play the game.). Errors in the use of auxiliary *be* with an inflected verb were even less frequent.

The overall rankings order of suppletive and affixal morphology as a group, from high to low, were copula *be*, irregular past forms, 3PSG *–s* and regular past *–ed.* The same order was

also found in each individual child's performance. The suppliance of copula *be* was considerably higher than other tense-related morphology. Overt morphology, specifically 3PSG-*s* and regular past *–ed*, was not used productively by the participants during the period of data collection, which was their first year in the United States. However, at the same period of time, copula *be* had already been acquired and used productively by the participants.

With respect to the acquisition of related syntactic properties, overt subjects and nominative case of subject pronouns were consistently present from the beginning of data collection. Instances of null and non-nominative subject were hardly observed. Three of the six participants never omitted subjects, and subjects were all appropriately assigned nominative case in every recording. The other three participants had few omissions of subjects; however, overt subjects were all assigned nominative case. Table 30 provides a summary of findings of the present study in the acquisition of verb inflections and related syntactic properties.

Table 30

Summary of Findings

Correct use of verb inflections				Non-omission errors[a]	Syntactic properties	
3PSG *-s*	Regular *-ed*	Irregular past	Copula *be*	tense & agreement	Overt Subjects	Nominative Subjects
16%	13%	38%	93%	13%	~100%	~100%

Note.[a]Use of tense and agreement morphology with incorrect person, number and tense.

5.2 Hypothesis and Predictions Revisited

The results of this study demonstrate that syntactic properties were used consistently and productively in the same period during which verb inflections, especially the affixal morphology, the 3PSG *–s* and regular past tense *–ed* were largely omitted. This finding provides evidence to support the prediction (1) that syntactic development precedes morphological development, and the prediction (2) that syntactic development is independent of morphological development. The early acquisition of syntax suggests that abstract properties are in place in the L2 initial state and trigger the acquisition of overt morphology. Since predictions (1) and (2) have also been observed in adult L2 acquisition, prediction (3), stating that child L2 learners are more like adult L2 learners, is thus confirmed.

Based on the findings, this study provides further evidence to support the Separation Hypothesis, stating that abstract properties are present in the L2 initial-state grammar and that syntax acts as the trigger for the acquisition of morphology. In the next section, I answer the two research questions by discussing several features shown in this study and other research on child L2 learners, and addressing similarities and differences between child L1, child L2, and adult L2 acquisition.

5.3 Asymmetry in the Use of Tense-Related Morphology

This study shows a different suppliance rate of verb inflections by child L2 learners in the early stages of language acquisition. The overall rankings of suppliance, from high to low, were copula *be*, irregular past forms, 3PSG *–s* and regular past *–ed.* The overt use of 3PSG *–s* and regular past *–ed* in obligatory contexts was relatively low in comparison with that of auxiliary and copula *be*, which was strikingly high.

The asymmetry in the suppliance of tense-related morphology can be considered the consequence of the influence of learners' native language knowledge. Child L2 learners acquired their L1 when learning an L2. Although L1 had not been fully acquired, its influence is likely to be present in the early stages of L2 acquisition. Participants in this study were native speakers of Chinese. As mentioned in section 1.2, Chinese is well-known for having impoverished verb inflections. Verbs are never inflected for tense and agreement features. Instead, Chinese native speakers rely on contextual information, such as temporal adverbs (e.g., 過去 for 'past'; 昨天 for 'yesterday'; 現在 for 'present'). In addition, Chinese is a topic-prominent language with a pragmatic word order, and subject-verb agreement is not required in order to show the grammatical word order in Chinese. As a result of L1 influence, Chinese native speakers might have difficulty in supplying the bound morphemes *–s* and *–ed* to show agreement and tense features. The other tense marking, the free morpheme copula *be*, corresponds to a single-syllable morpheme as an individual word in Chinese. The similarity makes the copula *be* more salient to be consistently used by Chinese-speaking children when learning English tense. As was also demonstrated in the suppliance of past tense forms, suppliance of irregular past forms was consistently higher than that of regular past *–ed*, since the bound form *–ed* which needs to be added to a word is not present in Chinese and remains difficult to be productively used.

After approximately one year of exposure to English, the six child L2 learners were still unable to consistently use *-s* and *-ed* during speech production. It is worth noting that this result is consistent with one longitudinal study covering a 5-year period of data collection. Jia and Fuse (2007) explored the levels of mastery across English grammatical morphemes (i.e., copula *be*, past tense morphology, third-person singular *–s*, and present progressive *-ing*) by 10 Chinese immigrant children and adolescents arriving in the United State between 5 and 16 years of age.

Results showed an identical overall ranking of use of grammatical morphemes as was found in the present study: from high to low, copula *be*, past irregular forms, 3PSG *–s*, and past regular *–ed*. With regard to the long-term attainment, Jia and Fuse (2007) reported that only present progressive *–ing* was mastered by all participants (over 80% accuracy across three consecutive sessions), while regular past *–ed* was mastered by none of the participants and showed no developmental trend over time. Though the developmental trend was observed in the use of 3PSG *–s*, all participants were still unable to consistently use the marking at the end of data collection. After approximately five years of exposure to English, omission of verb inflections was still frequent during speech production by the 10 Chinese children and adolescents.

It is clear that the acquisition of some morphological markings, 3PSG *–s* and regular past *–ed* in particular, presents difficulties to L2 learners, and that the period of time required to achieve native-like mastery may need more than five years of exposure in the case of Chinese native speakers. Indeed, in comparison with previous studies on early child L2 learners, suppliance of 3PSG *-s* and regular past *-ed* by the six Chinese children was considerably lower than child L2 leaners whose native languages have rich inflections, such as Spanish, Turkish and Russian. Overt use of 3PSG *–s* was 16% by the six Chinese children in this study, 47% by Turkish native-speaker children (Haznedar, 2001), and 22% by Russian native-speaker children (Ionin & Wexler, 2002), and suppliance of regular past tense *–ed* was 13%, 26%, and 42% in the three studies respectively. Though child L2 learners have not fully acquired their L1, its influence can still be significant, especially in the early stages of L2 acquisition. Without verb inflections in L1, Chinese child L2 learners of English will need more time to acquire English tense and agreement than child L2 learners whose native languages have rich morphology.

At the same time, however, findings show similarities among child L2 learners with or without rich morphology in their L1 - an asymmetry in the use of suppletive (i.e., copula/auxiliary *be*) and affixal (i.e., 3PSG *-s* and past regular *-ed*) inflections. The copula and auxiliary *be* emerged and were acquired rather earlier than the other tense-related markings *-s* and *-ed* by the six Chinese children at the same period of time. The asymmetry in the use of the suppletive inflections and the affixal inflections has been reported by other studies on child L2 learners as well. Hakuta (1976) studied the acquisition of English grammatical morphemes by a five-year-old Japanese girl. Longitudinal data were collected after five months of exposure to English. The data showed a higher suppliance of copula and auxiliary *be* than 3PSG *–s* and regular past *–ed*. Lakshmanan (2000) conducted a study on Spanish-L1 children learning English verb inflections. Data were collected right after their arrival in the United States, and results also demonstrated higher suppliance of copula and auxiliary *be* than 3PSG *–s* and regular past *–ed.* Geckin and Haznedar (2008) also reported a higher suppliance of copula *be* than 3PSG *–s* and regular past *–ed* by three Turkish child L2 learners of English.

The asymmetry in the use of suppletive and affixal inflections has raised the question as to what causes the late mastery of the *–s* and *–ed* by child L2 learners, even those whose native languages have rich morphology. In their study on the acquisition of tense and agreement by twenty Russian-L1 English-L2 leaners, Ionin and Wexler (2002) examined one potential explanation in that the difficulty may be due to cluster reduction at the end of a word. For example, L2 leaners of English whose native languages have no final consonant clusters may pronounce *wants* as /wans/ or /wan/ as the cluster /nts/ is reduced to /ns/ or /n/. However, Ionin and Wexler provided evidence against such an account. They looked at the L2 learners' use of third person present tense singular inflection on *do, have,* and *say,* and hypothesized that if the

omission of *–s* was due to difficulty in reducing final consonant clusters, then it would be expected to have a higher production of *does*, *has* and *says*, both without a reduction of word-final phonemes. However, results showed a nearly identical omission of *–s* with regular verb and irregular verb *does*, *has*, and *says* (i.e., omission was 78% and 74% respectively). Meanwhile, Ionin and Wexler reported a low omission rate for plural *–s* as opposed to the third-person singular *–s*. They argued that if it was due to a phonological problem, then it is unclear why the plural *–s* would be used productively while the third-person singular *–s* would be largely omitted. Similar findings were shown in the present study as well. The average suppliance of plural *–s* (57%) was considerably higher than 3PSG *–s* (16%) by the six Chinese children. There was one particular case of a child, *Lynn*, who completely omitted the 3PSG *–s*, while having a high suppliance of plural *–s* (36%). A low suppliance of the 3PSG *–s* and regular past form *–ed* seems less likely to be a phonological problem. Otherwise, the plural *–s* and 3PSG *-s* should both have similar omission or suppliance rates.

On the other hand, the asymmetry in the use of suppletive and affixal inflections by child L2 learners has raised the question of whether the trigger of functional projection [Infl] consisting of tense and agreement features differs between monolingual children and child L2 learners. Studies on L1 acquisition have suggested that the functional projection of [Infl] is triggered by affixal inflections, *–s* or *-ed*, while in L2 acquisition, the suppletive inflections, the copula and auxiliary *be* are claimed to function as the trigger of the acquisition of functional category [Infl]. As mentioned above, the suppletive inflection *be* was acquired rather early by child L2 learners, independent of L1 with or without rich inflections. Suppletive inflections seem more salient to be acquired and further function as a trigger for the acquisition of functional projection of [Infl] in L2 grammar.

5.4 Error versus Omission

In addition to the early acquisition of copula and auxiliary *be*, another feature common to child L2 acquisition, regardless of L1 is that errors in the use of verb inflections were few. As demonstrated in this study, errors in the use of tense and agreement were rather few in comparison with the omission of verb inflections by the six Chinese child L2 learners. Haznedar (2001) studied the acquisition of inflectional morphology by a Turkish-L1 English-L2 child. Results showed a great amount of omission of verb inflections, while instances of errors in the use of tense and agreement were few. In other words, when verb inflections are produced, they are largely used correctly. Errors in the use of 3PSG *–s* with person other than the third or use of regular past form *–ed* in the present contexts are hardly observed in the speech production of child L2 learners.

With regard to this, researchers have provided an explanation. Few errors in the use of verb inflections suggest that the functional category [Infl] consisting of tense and agreement features is present in L2 learner's interlanguage grammar, and prevents a mismatch from occurring during processing. If the functional head [Infl] of the IP is checked as [+finite], the verb has to undergo covert movement to higher level to gather the tense or agreement feature via the feature-checking mechanism. For example, the 3PSG *–s* is realized when the [Infl] is checked as the third-person and present tense. If the functional category [Infl] and the feature-checking mechanism are not in place, a mismatch between forms and features, for example, the use of 3PSG *–s* with the second person *you* or use of regular past form *–ed* in present contexts would presumably be observed frequently. However, child L2 studies have reported few errors in the use of tense and agreement morphology (e.g., Geckin & Haznedar, 2008; Haznedar, 2001; Ionin

& Wexler, 2002; Lakshmanan, 2000). This suggests that the functional category [Infl] and the feature-checking mechanism are present in L2 grammar and prevent a mismatch from occurring.

5.5 Related Syntactic Properties

Early acquisition of related syntactic properties, overt subjects and nominative case assignment observed in this study is also common to child L2 learners with different L1 backgrounds. Studies on the acquisition of verb inflections with syntactic consequence have been concerned with the presence of functional category [Infl] in the L2 initial state, and the triggering relationship between morphology and syntax. The implication of early acquisition of syntactic properties is now discussed.

There are three types of evidence which can be used to determine the presence of functional category [Infl] in L2 interlanguage grammars. The first is the few instances of errors in the use of tense and agreement. As mentioned, the presence of functional category [Infl] and the feature-checking mechanism prevent a mismatch from occurring during processing. If the functional category [Infl] is absent, the misuse of verb inflections would occur frequently.

The other two types of evidence often taken as indicating the existence of the functional category [Infl] are the use of overt subjects and the assignment of the nominative case to pronoun subjects. Section 2.1.1 presents the null subject parameter. Languages differ as to whether finite verbs (i.e., verbs are inflected for tense) can have a null subject (subject is not overtly presented). English is a non-null subject language, so the subject has to be overtly presented with finite verbs. If [T] is checked as [+finite], then the subject has to be overtly presented in the syntactic structure. In other words, the presence of subjects implies that the functional category [Infl] and the feature-checking mechanism are in place. Likewise, the assignment of the nominative case to

subject position indicates the presence of functional category [Infl]. If [T] is [+finite], a nominative case, *she,* has to be assigned to the subject position. If [T] is [-finite], because nonfinite verbs do not raise, the nominative case cannot be assigned to pronoun subjects. The default form, the accusative case, *her*, will be assigned to the subject pronoun position (see section 2.1.2). As shown in this study, subjects were largely present and appropriately assigned the nominative case by the six Chinese children. Similar findings were also reported in other studies on child L2 learners (Haznedar, 2001; Ionin & Wexler, 2002; Lakshmanan, 2000).

In sum, the acquisition of verb inflections and syntactic properties by child L2 learners shares common features in the early stages. First, independent of L1 with or without rich morphology, copula *be* was acquired rather early compared to the other tense-related morphology, namely 3PSG *–s* and regular past form *–ed,* which were largely omitted. Second, errors in the use of tense and agreement are few in comparison with omission, suggesting that the functional category [Infl] is already in place. Last, related syntactic properties, overt and nominative subjects are present early, implying that syntactic development precedes morphological development. These are features observed not only in the present study but are also common to child L2 learners with different L1 backgrounds.

Child L2 learners are like adult L2 learners, in that they both have acquired their native languages, yet they differ in the age of onset in L2 acquisition. On the other hand, child L2 acquisition is like child L1 acquisition, in that they both have access to UG, while child L2 learners have knowledge of another language. Child L2 learners share characteristics of both the L1 child (i.e., early start and UG-governed) and adult L2 learners (i.e., presence of native language knowledge). How the acquisition of verb inflections with syntactic consequences by child L2 learners is different or similar to child L1 and adult L2 learners is discussed next.

5.6 Tense and Agreement in Child L1, Child L2, and Adult L2 Acquisition

The second research question investigated in this study is whether child L2 acquisition is more like child L1 or adult L2 acquisition. To answer this, linguistic features observed in child L2 learners from this study were compared with child L1 and adult L2 learners from the literature in this field. Three linguistic features reported in this study are examined - asymmetry in the suppliance of suppletive and affixal inflections, few errors in the use of verb inflections, and the early acquisition of syntactic properties. The first feature is related to the trigger of the functional projection of [Infl], and the other two are related to the presence of functional category [Infl] in L2 grammars.

5.6.1 Comparison between Child L1 and Child L2 Learners

The aspect of few errors in the use of tense and agreement morphology observed in this study is common to child L2 acquisition regardless of L1 backgrounds. Likewise, studies on L1 and adult L2 acquisition have reported that misuse of tense and agreement morphology seldom occurs in comparison with the omissions (e.g., Prévost & White, 2000; Lardiere, 1998). Few errors in the use of tense and agreement morphology appear to be common to child L1, child L2, and adult L2 acquisition. However, there are differences among the three groups of learners in the other two features, that is, asymmetry in the suppliance of suppletive and affixal inflections as well as the triggering relationship between morphology and syntax. Findings on child L2 learners from this study are first compared with those on monolingual children reported in the literature in this field.

Section 2.0 briefly noted the longitudinal study of Brown (1973) on the acquisition of 14 English morphemes. The study shows that the acquisition of English morphemes displays an

acquisition sequence by English monolingual children. Later, Dulay and Burt (1974) conducted a similar study on Spanish and Chinese children learning English as L2. The results also demonstrated an acquisition sequence of English morphemes by child L2 learners even with different L1 backgrounds. Although both child L1 and child L2 acquisition exhibit developmental sequences in acquiring English morphemes, asymmetry in the suppliance of suppletive and affixal inflections is, in fact, only observed in child L2 learners with various L1 backgrounds (e.g., Chinese, Japanese, Turkish, Russian). The asymmetry is not seen in the early speech production of English monolingual children. Instead, the acquisition of morphemes is observed to be clustered together. There is no difference in the acquisition of suppletive and affixal morphemes. In other words, the copula *be* is not acquired earlier than the 3PSG *–s* and regular past *–ed* by English monolingual children. In contrast, findings from the longitudinal (Haznedar, 2001; Lakshmanan, 2000) and the cross-sectional studies (Ionin and Wexler, 2002) on child L2 learners show that the acquisition of suppletive inflections, the copula and auxiliary *be*, is earlier than the acquisition of affixal inflections, the 3PSG *–s* and regular past *-ed*. Meanwhile, the difference in the acquisition of suppletive and affixal inflections between child L1 and child L2 learners may suggest a different trigger for the functional projection of [Infl] at the initial stage. It is claimed that the affixal inflections, 3PSG *–s* and past tense *–ed,* function as the trigger in child L1 acquisition, while it might be the suppletive inflections, the copula/auxiliary *be*, serve as the trigger for the functional projection of [Infl] in child L2 acquisition.

In addition to differences in the acquisition of suppletive and affixal inflections, child L2 acquisition also differs from child L1 acquisition in the triggering relationship between the use of overt morphology and syntactic properties. The RI phenomenon (Rizzi, 1993/1994) which has

been observed in monolingual children with various L1 backgrounds suggests a close relationship between the acquisition of morphology and syntax. During the RI stage, the omission of verb inflections co-occurs with the licensing of null subjects and the assignment of a default form, the accusative case, to subject position. Once monolingual children go through the RI stage, verb inflections are used consistently together with the use of overt and nominative subjects. Both the licensing of overt subjects and the assignment of the nominative case is done via the feature-checking mechanism. The properties of the RI stage suggest a dependent relationship between syntactic and morphological development in L1 acquisition.

In contrast, such a dependent relationship between the emergence of verb inflections and related syntactic properties is not manifested in child L2 acquisition. As shown in this study, syntactic development precedes morphological development. Though verb inflections were largely omitted by the six Chinese child L2 learners, the licensing of null subjects and the assignment of non-nominative case to subject positions were seldom observed in their speech production. Likewise, studies on the acquisition of tense and agreement by child L2 learners from longitudinal and cross-sectional data also demonstrated an earlier mastery of syntactic properties than verb inflections, which were largely absent during the same period of time (e.g., Haznedar, 2001; Ionin & Wexler, 2002; Lakshmanan, 2000). The overall evidence shows that child L2 learners have syntactic knowledge early, and that it triggers later acquisition of overt morphology. Furthermore, since the use of overt subjects and nominative case assignment are via the feature-checking mechanism, the early acquisition of syntactic properties suggests that child L2 learners have knowledge of abstract properties, and that the functional category [Infl] is in place in the early stages of language acquisition. The dependent relationship between the acquisition of verb inflections and related syntactic properties in L1 acquisition seems not to be

observed in child L2 acquisition. The only similarity in the acquisition of tense and agreement between child L1 and child L2 acquisition appears to be few errors in the suppliance of verb inflections in the early stages.

5.6.2 Comparison between Child L2 and Adult L2 Learners

Child L2 learners are further compared with adult L2 learners. The asymmetry in the suppliance of suppletive and affixal inflections shown in the speech production of child L2 learners has been also observed in adult L2 acquisition. As mentioned above, this suggests that copula and auxiliary *be* function as the trigger for the functional projection of [Infl] in adult L2 acquisition. However, it needs to be pointed out that the asymmetry in the suppliance of suppletive and affixal inflections appears to be a developmental phenomenon in the early stages in child L2 acquisition, while it may remain persistent in adult L2 acquisition. This study failed to demonstrate such a developmental phenomenon by child L2 learners due to the duration of data collection. Findings from other longitudinal case studies show that child L2 learners are close to mastering the affixal inflections, 3PSG *–s* and regular past *-ed* after approximately ten months of exposure to English (Lakshmanan, 1994). Nevertheless, the asymmetry in the suppliance of suppletive and affixal inflections tends to a permanent phenomenon in adult L2 acquisition. The frequent omission of affixal inflections, *–s* and *–ed,* can be still observed in the speech production of most adult L2 learners, even after a prolonged period of exposure to English (Lardiere, 1998).

With regard to syntactic development, adult L2 learners demonstrate knowledge of abstract properties of tense and agreement similar to child L2 learners in the early stages of language acquisition. In spite of the absence of verb inflections, the subjects are well present and

assigned nominative case, suggesting that the functional category [Infl] is represented in adult L2 grammar. Both child L2 and adult L2 acquisition display a rather earlier acquisition of syntax than that of verb inflections. The acquisition of morphology and syntax seems not to be developmentally related in both child and adult L2 acquisition.

In both child and adult L2 acquisition, syntactic development precedes morphological development. However, child L2 learners are expected to achieve native-like mastery of verb inflections in the ultimate attainment. The distinction between syntactic and morphological development is only shown in the early stages of language acquisition. In contrast, difficulties in the suppliance of verb inflections may be persistent in adult L2 acquisition, and it leads to permanent asymmetry in syntactic and morphological development. Lardiere (1998) examined the acquisition of verb inflections by *Patty*, a Chinese adult L2 learner of English. Data were first collected after she had been in the United States for about ten years. The second and the third recording covered a span of approximately eight years. Lardiere reported that the suppliance of verb inflections, 3PSG *-s* and regular past *-ed* in spontaneous production was considerably low, while subjects were invariably overt and appropriately assigned the nominative case. The case study which represents the end state of adult L2 acquisition shows that difficulties in the suppliance of verb inflections may be persistent, while related syntactic structures were acquired early and used consistently. As Lardiere suggests, adult L2 learners have the same abstract properties of tense and agreement as child L2 learners, and the omission of verb inflections may be simply due to a mapping problem. The acquisition of syntactic properties seems to occur earlier and more easily than that of overt morphology in adult L2 acquisition.

Both the case study of *Patty* and child L2 learners of this study are Chinese native-speakers. Although the omission of verb inflections may be attributed to L1 influence – the

impoverished morphology of Chinese – its influence might be more significant on child L2 learners, especially in the early stages, than on adult L2 learners who have attained a steady-state grammar. In other words, difficulties in the suppliance of verb inflections are more likely due to a fossilized interlanguage grammar than the influence of native language knowledge in adult L2 acquisition. On this, Lakshmanan and Tezel (1998) conducted a case study on the acquisition of verb inflections *Kezeban*, a Turkish adult L2 learner of English, and examined the potential influence of L1 on an end-state grammar. As opposed to Chinese, Turkish has rich verb inflections and is a null subject language. If the omission of verb inflections is due to L1 influence, then it can be expected that *Kezeban* would have less difficulty in supplying verb inflections than *Patty*, since Turkish has rich inflections, compared to Chinese. However, results showed that the suppliance of suppletive inflections, copula and auxiliary *be* were more productive than affixal inflections, 3PSG *–s* and regular past tense *–ed* which were largely omitted. In terms of its syntactic properties, *Kezeban*'s speech samples showed the presence of abstract properties of tense and agreement, as the overt subjects and the assignment of nominative case to subject pronoun were all present, even though Turkish is a null subject language. The two case studies by Lardiere (1998) and Lakshmanan and Tezel (1998) reported similar results in the use of verb inflections and syntactic properties, suggesting that the omission of verb inflections may be due to a fossilized end-state grammar, instead of an L1 influence in adult L2 acquisition.

In sum, child and adult L2 learners seem to have knowledge of abstract properties of tense and agreement in the early stages of language acquisition, as demonstrated by the consistent use of overt and nominative subjects. Nevertheless, if abstract properties with associated features are present in L2 interlanguage grammar, then what could account for the

omission of verb inflections, regardless of a temporary or permanent phenomenon in L2 acquisition? Prévost and White (2000) appeal to a mapping problem to account for the difficulties in the realization of verb inflections in L2 acquisition. The Missing Surface Inflection Hypothesis proposes that L2 learners have unconscious knowledge of functional categories and features related to tense and agreement, but they may have difficulties in mapping abstract features to surface forms. Prévost and White argue that if the syntactic representation is impaired, it is expected that errors in the use of tense and agreement morphology would occur often. However, evidence shows that errors were few, suggesting that the feature-checking mechanism is in place and the syntactic representation is complete in the L2 grammar.

Three linguistic features observed in child L2 learners in this study and also common to child L2 learners with different L1 backgrounds were examined in attempting to answer the question as to whether child L2 acquisition is more like child L1 or adult L2 acquisition. As mentioned earlier, child L2 learners share characteristics of both the L1 child (i.e., early start and UG-governed) and adult L2 learners (i.e., presence of native language knowledge). Findings on child L2 learners from this study were compared with observed phenomena among monolingual children and adult L2 learners reported in the literature. Child L2 acquisition appears to be like child L1 acquisition only in the feature of few errors in the use of verb inflections. However, child L2 acquisition is like adult L2 acquisition in all three linguistic features examined - the asymmetry in the suppliance of suppletive and affixal inflections, the early acquisition of syntactic properties, and few errors in the use of tense and agreement morphology. Accordingly, in terms of the early stages of language acquisition and not in ultimate attainment, I conclude that child L2 learners are more like adult L2 learners in the acquisition of tense and agreement

morphology with syntactic consequences. Table 31 shows the differences in the three linguistic features among child L1, child L2, and adult L2 acquisition.

Table 31

Differences among Child L1, Child L2, and Adult L2 Acquisition

features	child L1	child L2*	adult L2*
omission > errors	√	√	√
be > -s, -ed		√	√
syntax > morphology		√	√

Note. *L1 with rich and impoverished morphology.

5.7 Conclusion

By 3 to 3.5 years of age, most normal children have acquired the basic structures of their L1 (Bates & Goodman, 1999). However, for children learning an L2, the period of time required to achieve native-like competence takes much longer. Cummins (2000) suggests that it takes at least 5 to 7 years for child L2 learners of English to develop native-like academic verbal skills.

It is recognized that the acquisition rates and the outcomes of L2 acquisition are affected by various factors, such as age of acquisition, influence of L1, language aptitude, and length of exposure. Paradis (2011) investigated factors that account for English L2 children's acquisition rates and outcomes for vocabulary size and accuracy with verb morphology. She discovered that L2 learners' L1 play a significant role in the accuracy of use of English verb inflections. Similar finding was also made in this study. The suppliance of verb inflections, by the six Chinese-L1 English-L2 children, was considerably lower than child L2 learners whose L1 is Turkish, Russian, or Spanish.

It is clear that learning an L2 is different from learning an L1. This dissertation has contributed to our understanding of the acquisition of morphology by examining Chinese native-speaker children learning English tense and agreement. The difference in the grammatical features makes it difficult for Chinese child L2 learners to acquire English tense and agreement, leading to slow acquisition rates. Lakshmanan (1994) claims that child L2 learners are close to mastering the affixal inflections, the 3PSG *–s* and regular past tense *-ed* after about ten months of exposure to English. However, findings from this study show that achieving native-like mastery of verb inflections requires more than that duration of exposure to English. In Jia and Fuse's study (2007), the omission of verb inflections could still be observed frequently during speech production by Chinese children and adolescents, even after approximately five years of exposure to English.

With regard to the relationship between the acquisition of morphology and syntax, this study reports a similarity between child and adult L2 acquisition in the acquisition of verb inflections with syntactic consequences. However, it needs to point out that the similarity between child and adult L2 learners is shown only in the early stages of language acquisition, not ultimate attainment. Child L2 learners are like adult L2 learners in that syntactic development precedes morphological development. Given sufficient time and exposure to L2, child L2 learners are expected to achieve native-like attainment in both morphology and syntax. However, the omission of verb inflections may remain permanent in most adult L2 learners.

One of the limitations in this study is the short period of time in data collection. The seven-month-long duration of data collection was not sufficient to observe the complete acquisition of tense and agreement by child L2 learners. Further study is recommended to observe the mastery of verb inflections by Chinese L2 learners. Another limitation is the data

collection measures. The conversation and the picture description tasks administered in this study provided naturalistic discourse settings to elicit the use of target morphemes. However, the disadvantages of these two tasks are that they failed to elicit a reasonable and reliable number of overt uses in obligatory contexts. The number of overt uses in obligatory contexts varied considerably in some verb inflections among participants. As an improvement for future study, one would be able to elicit consistent total number of use of target morphemes, by using more controlled measures, such as the Test of Early Grammatical Impairment (TEGI, Rice & Wexler, 2001), or the classic *wug* test (Berko, 1958).

An intriguing future study would be to compare Chinese child L2 learners (i.e., sequential bilinguals) with English-Chinese bilinguals (i.e., simultaneous bilinguals) to discern the L1 influence on acquiring English tense and agreement. One could also compare the acquisition of English grammatical morphemes in classroom settings (i.e., English as a foreign language) and in naturalistic settings (i.e., English as a second language) to explore potential environmental factors affecting the acquisition of English grammatical morphemes. Furthermore, by using different types of tasks (e.g., production and comprehension), one may obtain different evidence for or against the presence of abstracts properties in L2 interlanguage grammars. Production tasks require on-line processing and cause pressure to use verb inflections. A comprehension task would therefore be more appropriate to reflect the abstract knowledge in a learner's mind, especially in the early stages of language acquisition.

REFERENCES

Adamson, H. D. (1988). *Variation Theory and Second Language Acquisition.* Washington DC: Georgetown University Press.

Bates, E., & Goodman, J. (1999). *The emergence of grammar from the lexicon*. Mahwah, NJ: Lawrence Erlbaum.

Beck, M. L. (1998). L2 acquisition and obligatory head movement: English-speaking learners of German and the local impairment hypothesis. *Studies in Second Language Acquisition, 20,* 311-348.

Bialystok, E. (1997). The structure of age; in search of barriers to second language acquisition. *Second Language Research, 13,* 116-137.

Birdsong, D. (1992). Ultimate attainment in SLA. *Language, 68,* 706-747.

Birdsong, D., & Molis, M. (2001). On the evidence for maturational constrains in second-language acquisition. *Journal of Memory and Language, 44,* 235-249.

Bley-Vroman, R., (1990). The logical problem of foreign language learning. *Linguistic Analysis 20*: 3-49.

Brown, R. (1973). *A First Language: The Early Stages*. Cambridge, Massachusetts: Harvard University Press.

Brown, R., & Bellugi, U. (1964). Three processes in the child's acquisition of syntax. *Harvard Educational Review, 34,* 133-151.

Borer, H., & Rohrbacher. B. (1997). Features and projections: arguments for the full competence hypothesis. *Proceedings of the 21st Annual Boston University Conference on Language Development,* 24-35. Somerville, MA: Cascadilla Press.

Chomsky, N. (1965). *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.

Clahsen, H. (1986). Verb inflections in German Child Language: Acquisition of agreement markings and the functions they encode. *Linguistics, 26,* 79-121.

Clahsen, H., Penke, M., & Parodi, T. (1993). Functional categories in early child German. *Language Acquisition, 3,* 395-429.

Clahsen, H., Eisenbeiss, S., & Penke, M. (1996). Lexical learning in early syntactic development.

In H. Clahsen (Ed.), *Generative Perspectives on Language Acquisition (*pp. 129-160). Amsterdam: Benjamins.

Clahsen, H., & Hong, U. (1995). Agreement and null subjects in German L2 development: new evidence from reaction-time experiments. *Second Language Research, 11*, 57-87.

Coppieters, R. (1987). Competence differences between native and near-native speakers. *Langauge, 63*, 544-573.

Crisma, P. (1992). On the acquisition of Wh-question in French. *Geneva Generative Papers*, 115-122.

Cummins, J. (2000). *Language, power and pedagogy: Bilingual children in the crossfire.* Clevedon, UK: Multilingual Matters.

Déprez, V., & Pierce, A. (1993). Negation and functional projections in early grammar. *Linguistic Inquiry, 24,* 25-67.

Dulay, H., & Burt, M. (1973). Should we teach children syntax? *Language Lerning, 24*, 245-258.

Dulay, H., & Burt, M. (1974). Natural sequences in child second language acquisition, *Language Learning, 24*, 37-53.

Ellis, N. C., & Schmidt, R. (1997). Morphological and longer-distance dependencies: Laboratory research illuminating the A in SLA. *Studies in Second Language Acquisition, 19,* 145-171.

Eubank, L. (1993a). Sentence Matching and Processing in L2 Development. *Second Language Research, 9*, 253-280.

Eubank, L. (1993b). On the transfer of parametric values in L2 development. *Language Acquisition, 3*, 183-208.

Flege, J. E., Yeni-Komshian, G. H., & Liu, S. (1999). Age constrains on second language acquisition. *Journal of Memory and Language, 41*, 78-104.

Geckin, V., & Haznedar, B. (2008). The morphology/syntax interface in child L2 acquisition: evidence from verbal morphology. In B. Haznedar, & E. Gavruseva (Eds.), *Current trends in child language acquisition: a generative perspective* (pp. 237-270). Amsterdam: John Benjamins.

Grondin, N., & White, L. (1996). Functional categories in child L2 acquisition of French. *Language Acquisition, 5,* 1-34.

Guasti, M. T. (1993/1994). Verb syntax in Italian child grammar: finite and nonfinite verbs. *Language Acquisition, 3,* 1-40.

Haegeman, L. (1995). Root infinitives, tense, and truncated structure in Dutch. *Language Acquisition, 4,* 205-255.

Hakuta, K., (1976). A case study of a Japanese child learning English as a second language. *Language Learning, 26,* 321-351.

Haznedar, B. (1997). *Child L2 acquisition of English: A longitudinal case study of a Turkish-speaking child*. Unpublished doctoral dissertation, University of Durham.

Haznedar, B. (2001). The acquisition of the IP system in child L2 English. *Studies in Second Language Acquisition, 23,* 1-39.

Haznedar, B. (2003). The status of functional categories in child L2 English. *Studies in Second Language Acquisition, 23,* 1-39.

Herschensohn, J., (2001). Missing inflection in second language French: accidental infinitives and others verbal deficits. *Second Language Research, 17,* 273-305.

Hoekstra, T., & Hyams, N. (1998). Aspects of root infinitives. *Lingua, 106,* 81-112.

Huang, C.-T. James (1998). *Logical relations in Chinese and the theory of grammar.* Doctoral dissertation, MIT.

Huebner, T. (1985). System and variability in interlanguage syntax. *Language Learning,* 35, 141-63.

Ionin, T., & Wexler, K. (2002). Why is 'is' easier than '-s'?: acquisition of tense/agreement morphology by child second language learners of English. *Second Language Research, 18,* 95-136.

Jia, G., & Fuse, A. (2007). Acquisition of English grammatical morphology by native mandarin-speaking children and adolescents: age-related differences. *Journal of Speech, Language, and Hearing Research, 50,* 1280-1299.

Johnson, J., & Newport, E. (1989). Critical period effects in second language learning: the influence of maturational state on the acquisition of English as a second language. *Cognitive Psychology, 21,* 60-99.

Klee, T. & Fitzgerald, M. D. (1985). The relation between grammatical development and mean length of utterances in morphemes. *Journal of Child Language, 12,* 251-269.

Lakshmanan, U., & Selinker, L. (1994). The status of CP and the tensed complementizer that in the developing L2 grammars of English. *Second Language Research, 10*, 25-48.

Lakshmanan, U. (1995). Child second language acquisition of syntax. *Studies in Second Language Acquisition, 17,* 301-329.

Lardiere, D. (1998). Case and tense in the 'fossilization' steady state. *Second Language Research, 14,* 1-26.

Legate, J. A., & Yang, C. (2007). Morphosyntactic learning and the development of tense, *Language Acquisition, 14,* 315-344.

Lightbown, P. M. (1977). French L2 learners: what they're talking about. *Language Learning, 27,* 371-381.

Muller, N. (1998). UG access without parameter setting. In M.-L. Beck (Ed.), *Morphology and its interfaces in second language knowledge* (pp. 115-163). Amsterdam; John Benjamins.

Paradis, J. (2011). Individual differences in child English second language acquisition: comparing child-internal and child-external factors. *Linguistic Approaches to Bilingualism, 1,* 213-237.

Parrish, B. (1987). A new look at methodologies in the study of article acquisition for learners of ESL. *Language Learning,* 37, 361-83.

Phillips, C. (1996). Root Infinitives are finite. In A. Stringfellow, D. Cahana-Arnitay, E. Hughes & A. Zukowski (Eds.), *Proceedings of the 20th Annual Boston University Conference on Language Development,* (pp. 588-599). Somerville, MA: Cascadilla Press.

Pollock, J. Y. (1989). Verb movement, Universal Grammar, and the structure of IP. *Linguistics Inquiry, 20,* 365-424.

Powers, S. M. (1995). The acquisition of pronouns in Dutch and English: the case for continuity. In D. MacLaughlin & S. McEwen (Eds.), *Proceedings of the 19th Annual Boston University Conference on Language Development,* (pp. 439-450). Somerville, MA: Cascadilla Press.

Prévost, P., & White, L. (1999). Accounting for morphological variation in second language acquisition: truncation or missing inflection? In M.-A. Friedemann & L. Rizze, (Eds.), *The acquisition of syntax* (pp. 202-235). London: Longman.

Prévost, P., & White, L. (2000). Missing surface inflection or impairment in second language acquisition? Evidence from tense and agreement. *Second Language Research, 16*, 103-133.

Prévost, P. (2003). Truncation and missing inflection in initial child L2 German. *Studies in Second Language Acquisition, 25*, 65-97.

Radford, A. (1990). *Syntactic theory and the acquisition of English syntax*. Oxford: Balckwell.

Radford, A. (1997). *Syntactic theory and the structure of English: a minimalist approach*. Cambridge: Cambridge University Press.

Rice, M.L., & Wexler, K. (2001). *Test of Early Grammatical Impairment*. New York: The Psychological Corporation.

Rohrbacher, B. (1999). *Morphology-driven syntax: a theory of V to I raising and pro-drop*. Amsterdam: John Benjamins.

Rispoli, M. (1994). Pronoun case overextensions and paradigm building. *Journal of Child Language*, 21, 157–172.

Rizzi, L. (1993). Some notes on linguistic theory and language development: the case of root infinitives. *Language Acquisition, 3,* 371-393.

Rizzi, L. (1994). Early null subjects and root null subjects. In T. Hoekstra & B. D. Schwartz (Eds.), *Language acquisition studies in generative grammar* (pp. 151-176). Amsterdam: John Benjamins.

Schwartz, B. D., & Sprouse, R. (1994). Word order and nominative case in nonnative language acquisition: a longitudinal study of (L1 Turkish) German interlanguage. In T. Hoekstra & B. D. Schwartz (Eds.), *Language acquisition studies in generative grammar* (pp. 317-368). Amsterdam: John Benjamins.

Schwartz, B. D., & Sprouse, R. (1996). L2 cognitive states and the Full Transfer/Full Access model. *Second Language Research, 12*, 40-72.

Schwartz, B. D., & Eubank, L. (1996). What is the 'L2 initial state?' *Second Language Research, 12,* 1-5.

Snow, C., & Hoefnagel-Höhle, M. (1978). The critical period for language acquisition: Evidence from second language learning. *Child Development, 49*, 1114-1128.

Sprouse, R. A. (1998). Some notes on the relationship between inflectional morphology and parameter setting in first and second language acquisition. In M.-L. Beck (Ed.), *Morphology and its interfaces in second language knowledge* (pp. 41-68). Amsterdam: John Benjamins.

Thomas, M. (1989). The acquisition of English articles by first- and second-language learners. *Applied Psycholinguistics,* 10, 335-55.

Vainikka, A. (1994). Case in the development of English Syntax. *Language Acquisition, 3,* 257-325.

Vainikka, A., & Young-Scholten, M., (1996). The early stage of adult L2 syntax: additional evidence from Romance speakers. *Second Language Research, 12,* 140-176.

Valian, V. (1991). Syntactic subjects in the early speech of American and Italian children. *Cognition, 41*, 21-81.

White, L. (1985). The pro-drop parameter in adult second language acquisition. *Language Learning, 35,* 47-61.

White, L. (1992). Long and short verb movement in second language acquisition. *Canadian Journal of Linguistics, 37,* 273-286.

White, L. (2003). Fossilization in steady state L2 grammars: Persistent problems with inflectional morphology. *Bilingualism: Language and Cognition, 6,* 129-141.

White, L. (2003). *Second Language Acquisition and Universal Grammar*. Cambridge, UK: Cambridge University Press.

Wexler, K. (1994). Optional infinitives, head movement, and the economy of derivations in child grammar. In D. Lightfoot & N. Hornstein (Eds.), *Verb movement* (pp. 305-350). Cambridge, UK: Cambridge University Press.

Yuan, B. (2001). The status of thematic verbs in the second language acquisition of Chinese. *Second Language Research, 17*, 248-272.

Zobl, H., & Liceras. J. (1994). Functional categories and acquisition orders. *Language Learning, 44*, 159-180.

APPENDIX A: QUESTIONNAIRE FOR PARTICIPANTS

Thank you for your participation in our research project on English development. Please take a few minutes to answer questions below regarding your child's language learning history. Please return this form to your child's Chinese language teacher.

Thank you very much!

Your child's name: _____ (in Chinese)

Place of birth: _____ Year of birth: _____

How long have you been in the US? _____

Anticipated duration of stay in the US? _____

If you are planning to leave the US before 2012, please specify the date: _____

Language background

1. What is your child's native language? _____

2. At what age did your child start to learn English? _____

3. Please rate your child's fluency in Chinese:

Not fluent				Very fluent
1	2	3	4	5

4. Please rate your child's fluency in English:

Not fluent				Very fluent
1	2	3	4	5

5. What language do you speak to your child?

a. only English b. mainly English c. English & Chinese equally
d. mainly Chinese f. only Chinese

APPENDIX B: SAMPLE OF PICTURE DESCRIPTION TASK

APPENDIX C: SAMPLES OF TRANSCRIPTS

Chris 1st Recording (04/07/11)

1. Spontaneous production task

EXP: Did you go anywhere during winter vacation?
CHI: Winter break…hmm…go to Florida.
EXP: How many days?
CHI: Eight.
EXP: Eight what?
CHI: Eight day.
EXP: Where did you visit?
CHI: First day, we go to Sea World. Next day we go to (place).
Third day we go to…huh…Magic Kingdom.
Last day we go to Universal Studio.
EXP: What's in the Sea World?
CHI: I see animal, and penguin, and polar bear, and sea lion.
In Disney World, I see sea lion, dolphin, and whale too.
Not here Sea World. It is Magic Kingdom.
In Sea World, we see firework. In Magic Kingdom have firework too.
I go to Florida with Sammy. Her Chinese name is (name)
After that, we don't go to other place. We go (place)
EXP: How did you get there? By airplane or driving?
CHI: Driving bus…have two driver.
One driver is for day, and one driver is for night.
EXP: How did you find out?
CHI: I talk to bus driver. Bus driver say… he is for day and another driver is for night.
EXP: Did you speak English with them?
CHI: Speak English.

EXP: Did you eat anything special?

CHI: We go to Florida and go to Chinese restaurant to eat food.
We live with host family.

CHI: Our first host family is new house, is… (in Chinese 5年前怎說?)

EXP: Five years ago

CHI: Five years ago, (in Chinese建造怎說?)

EXP: Build up

CHI: Build up.

CHI: Our host family is two people is…(in Chinese夫妻怎說?)

EXP: Husband and wife

CHI: Husband and wife.
She is learn food, and he is learn to cook.

CHI: Eight day, we play four day, and four day is on bus.
We play Sunday, one day one night is on bus, two day two night is on bus.
We play four day, we play five day one night. five days four night…

EXP: You had lots of fun there. Okay, let's talk about something else. Do you have good friends here?

CHI: Best friend is…I have three best friends: one is ZR.
First is Zarich, and two…huh…second is Ramen.
He is fifth grader, and Zarich is 4th grader, and Jerry is 4th grader.

EXP: Do you have friends in the same class?

CHI: In China I have many. In here, Zarich…
Jessie, and Michel, but now he is go back to China.
He is…huh…from last year. December go back to China.

EXP: How about Ramen?

CHI: He English is so good, and Chinese is good.
He…his English is good than me.

EXP: What does he like?

CHI: I know in community center, Ramen like play in computer room, play computer.

EXP: Do you play together?

CHI: Some game is he play, but I don't know who to play.
I watch he play.

EXP: Does he teach you to play games?

CHI: I can…he can…maybe…I ask he, and he can teach me.

EXP: How about Jack?

CHI: He a little like computer game, but his favorite is Lego.
He like Lego. I like Lego too.
Jack have some…have some Star War Lego.
He have two…he have Sky Walker.

EXP: Have you watched the movie?

CHI: Sometimes I watch movie. Star War have 7 or 8.

EXP: Does Jack like the movie?

CHI: Maybe…

EXP: Maybe what?

CHI: Like watch Star War movie.

EXP: How about Zarich?

CHI: But I know he is 4th grader. Maybe Zarich is 4th grader…
Maybe he are…huh…10 years old.
I'm born in 2003, and… sheep.

EXP: What does Zarich like?

CHI: He…huh…I think he like Lego too…I think he like Lego too.

EXP: Do you visit his house and play with him?

CHI: I don't go to Zarich house, but I go to...in last week, Sat…huh….Sun, I go to
Jerry house, and Zarich go to his house too.

EXP: What did you play?

CHI: Lego and chess…he have a chess.
Maybe I learn chess that maybe learn chess is hard

EXP: How about girls…friends?

CHI: Without Sammy and Lynn…not is very good friend…

Every girl is very good friend.

Lynn (?) is very good friend, but is good friend.

But I'm not very like Sammy. She not nice.

She sometime (*he didn't pronounce 's') is nice, but she…

[*I*] don't very like… but sometimes she is good, but sometimes she is bad.

Lynn better than Sammy…

I thinks she like Lego too. She like Star War Lego too. She is in class.

She likes…she is very like Star War… I ask she and she says she like Star War.

But we think she's [*her*] parents… me and my…(in Chinese同學怎說?)

EXP: Classmates

CHI: Classmate is think she is a girl, but [*is*] like a boy, but she is a girl.

CHI: We go to David's home play, and she don't to girl's room, and go to boy's room play Lego. She not is very very like me.

But she is like boys' toy and she (?) [*is*] like a boy.

But she sometime is not nice.

2. Picture description task

One day John go to city park.

First he throw some trash.

He go to market, and buy a bicycle.

One hour for five dollar, two hour for ten dollar, three hour for thirteen dollar.

He pay the money for he

He ride the bicycle.

The bicycle is broken, and he take the bicycle to the…owner.

Chris 8th Recording (10/05/11)

1. Spontaneous production task

EXP: When was your field trip?

CHI: Is Tuesday, was Tuesday.

EXP: Where did you go?

CHI: A movie theater.

EXP: What did you do there?

CHI: I don't know what's the name.
We go watch movie.
Movie's name was African cats.

EXP: What is it about?

CHI: It's about all the animals living African.

EXP: What kinds of animals did you see in that movie?

CHI: It's too much. I can't remember all.
Hmm...elephant, lions...also a kind of
bird. I don't know what's the name.

EXP: How about yesterday, did you come to school?

CHI: Yesterday I come to school.

EXP: Is there anything you can share with me during this week?

CHI: I like Tuesday, because in Tuesday…they more morning…
We...in Tuesday morning.
We just in class and learn thing and do work.
But in noon, we go to lunch.
Then afternoon, we go to filed trip.
I like movie. Then when we finish school.
I go to orchard down community center.
I finish my homework.

I go back to home, and play.

Then when we go back, I play computer.

I think Tuesday is a good day.

EXP: How about the weekend? Did you do anything special?

CHI: Saturday I go to Urbana Free library.

Take some book from there, and play chess.

EXP: What book did you read?

CHI: Actually I don't read book right there. I just take book from there.

Then go...I go back to home.

CHI: Do you know we have ESL class? And we have every day have reading log.

I can use those book to read and sign those book on readying log

EXP: What is reading log?

CHI: Read the book, then sign the book's name on the reading log.

Then write date. Then two sentence about this book.

Every day we have to... have reading log.

CHI: I read the book. If I can't remember what' the book...

If when I finish the book, and I can't remember what's the book about.

I can look at those pages. I can write something about it.

EXP: Anything else during weekend?

CHI: I go watch movie at Saturday. I don't know what's the name of it.

EXP: What's it about?

CHI: About wolf. It's about two wolfs.

Some people go there, and take they...

First they is in one national park at Canada.

Some people go there and take they to another national park is in American.

Then they want to go back. They have to first tell them.

Then they can ride one people's van to go back.

Then they want to ride the van, but the van...they can't... catch the car.

But they can't catch up the car, the van.

Then they ask those two birds, do they have other...way…

Do they have another way to go back to their national park.

The two birds tell them, they can ride the train.

Train is go back to this national park.

When the train coming, the two birds is wait for those two wolfs coming.

These two wolfs is coming to the train.

When they...they see the bear, the bear is a baby bear.

Throw snow ball to the wolf and then the wolf throw snow ball back to the bear,

The baby bear cry. Then other bear's parents coming.

They go to…(in Chines懸崖怎說?)

EXP: cliff

CHI: They go to cliff, and they all fall down.

They found a wood like...like snow board.

They sit on this.

Then they ride this wood and come down to the cliff.

The cliff is in another (?) They slide down.

The bear also slide down.

Suddenly the train is coming.

They jump into the train.

The bear go up the train and go... is like jump....the train is right here, the bear is right here.

The bear slide down.

The train is coming.

The bear is like across the train up side across over the top of the train.

They go back to their national park.

EXP: That sounds an interesting movie. Anything else?

CHI: Hmm…no.

EXP: Ok, let's talk about other stuff. Before you come to America, how did you learn English?

CHI: No, just talk to other people and listen to people.

EXP: How about in China, do you have English class?

CHI: But is not good as in American, because in American we can actually talk and listen to other American, but in China English class is not…so exactly was what do American say.

EXP: Where did you have the English class?

CHI: Is outside of the school. But English class is at Sat or Sun.
We don't go to school. When I in China go to English class is at Tuesday and Saturday. I go to there. Actually I also can go there at Wed. and Sun.

EXP: Is it after school?

CHI: Is after school. No, not after school.
It's like...start at 6 or 7 o'clock.
When I finish my homework, and finish is like 8 PM. 1 hour to 2 hour
Because it's in I go there in China so many month ago. It's last year.

EXP: Do you have the class every day?

CHI: Yes, but I think in school English class also is not so good.

EXP: What kind of English class do you have?

CHI: In school is just learn.
In outside of the school is talk to each other, and play game.
Chinese teacher. Both Chinese teachers.
But main time they talk English. But they talk English in English class.

EXP: What does your teacher teach in school in China?

CHI: I can't remember.
Mostly about...they teach words, but they don't teach how to say it.

That's in school. I have English class like in preschool or kindergarten.
I also have English at first grader. But also is not helpful than go to America.
I think when here is more helpful.

EXP: When do you start to learn English?
CHI: In preschool and kindergarten I learn English in school.
But in first grade I learn English in school and also outside of the school.

EXP: When you know that you're coming to America, did you do anything to practice English?
CHI: I just come here and talk and listen and practice.

EXP: Do you have any American friend here?
CHI: Yes. I also have Chinese friends in here.
But the bad thing is...now is many Chinese student is come, went, go back to China, but not too much people come to America.

EXP: Does your mom or dad teach you English?
CHI: No. but I just talk and listen. I also talk at community center.
But in ninety percent times, in community center I just talk to Chinese people.
Not too much say English and American.
So I don't talk too much English at Orchard Down community center.

EXP: Do you think your English is getting better?
CHI: I feel my English is better than in China. I know more English.
EXP: Do you still have difficulty when talk to people in English?
CHI: Sometimes I have problem, but other time I don't have too much problem.
Just sometimes I have problem, I don't have too much...

2. Picture description task – *Frog, where are you?*

The boy and the dog have a frog.
Tonight when they sleep, the frog run away, come out the bottle.
Next morning when they get up, they go to see the frog. The frog is gone.
The found all the places in their home, but they still can't find the frog
They go to the window and see outside if they can found the frog.
The dog is fall down. On the dog's head have a bottle.
The dog fall down. The jar is broken
The boy so angry. He... become the dog.
The boy yell...they go to forest. And they yell. They went to find the frog.
The dog like...the dog shakes the tree.
The bee's house is fall down. The bees went to the dog.
The boy is finding for the frog. Is looking for the frog.
Then the bird pee on the boy's head.
Because he is like this.
Then the boy is keep looking for the frog. (p)the boy is keep looking for the frog.
He saw this is a tree, and then the deer get up.
He see is a deer. The deer is come out, go to a cliff.
The boy is sitting on the deer's head.
Deer is running to the dog
The boy and the dog is fall down the cliff
Fall into a pound.
They fall down to a pound. They swim to the log
They listen. The boy listen... hear something.
The boy let the dog be quite.
They see...they find the frog
The frog have married, and have many baby frogs.
They take away a baby frog.
The frog is right there.

APPENDIX D: SUPPLIANCE OF COPULA *BE*

	Recording	Overt *be*	%	Omission *be*	%
	1	2/3	67	1/3	33
	2	35/38	92	3/38	8
	3	19/19	100	0/19	0
	4	26/26	100	0/26	0
Chris	5	19/19	100	0/19	0
	6	22/24	92	2/24	8
	7	11/11	100	0/11	0
	8	23/24	96	1/24	4
	Total	157/164	96	7/164	4
	Recording	Overt *be*	%	Omission *be*	%
	1	3/3	100	0	0
	2	9/9	100	0	0
	3	5/5	100	0	0
	4	8/8	100	0	0
Lynn	5	13/14	93	1/14	7
	6	11/14	79	3/14	21
	7	20/22	91	2/22	9
	8	27/31	87	4/31	13
	Total	96/106	91	10/106	9

(Cont.)

	Recording	Overt *be*	%	Omission *be*	%
	1	2/3	67	1/3	33
	2	7/10	70	3/10	30
	3	15/15	100	0	0
	4	16/17	94	1/17	6
Sammy	5	29/31	94	2/31	6
	6	23/24	96	1/24	4
	7	22/27	81	5/27	19
	8	20/20	100	0/20	0
	Total	134/147	91	13/147	9%
	Recording	Overt *be*	%	Omission *be*	%
	1	4/5	80	1/5	20
	2	2/2	100	0/2	0
	3	6/6	100	0/6	0
	4	8/10	80	2/10	20
Hanna	5	7/7	100	0/7	0
	6	13/13	100	0/13	0
	7	6/6	100	0/6	0
	8	1/1	100	0/1	0
	Total	47/50	94	3/50	6

(Cont.)

	Recording	Overt *be*	%	Omission *be*	%
Jack	1	5/5	100	0/5	0
	2	14/16	88	2/16	13
	3	14/16	88	2/16	13
	4	10/10	100	0/10	0
	5	21/25	84	4/25	16
	6	19/20	95	1/20	5
	7	38/45	84	7/45	16
	Total	121/137	88%	16/137	12%
	Recording	Overt *be*	%	Omission *be*	%
Ann	1	41/41	100	0/41	0
	2	54/54	100	0/54	0
	3	20/20	100	0/20	0
	4	25/25	100	0/25	0
	5	34/34	100	0/34	0
	6	41/41	100	0/41	0
	7	38/38	100	0/38	0
	Total	253/253	100	0/253	0

APPENDIX E: SUPPLIANCE OF THIRD-PERSON SINGULAR –*S*

	Recording	Overt -*s*	%	Omission -*s*	%
	1	0/10	0	10/10	100
	2	1/12	8	11/12	92
	3	0/6	0	6/6	100
	4	1/16	6	15/16	94
Chris	5	0/11	0	11/11	100
	6	3/11	27	8/11	73
	7	0/7	0	7/7	100
	8	2/5	40	3/5	60
	Total	7/78	9	71/78	91
	Recording	Overt -*s*	%	Omission -*s*	%
	1	0/7	0	7/7	100
	2	0/11	0	11/11	100
	3	0/7	0	7/7	100
	4	0/6	0	6/6	100
Lynn	5	0/8	0	8/8	100
	6	0/12	0	12/12	100
	7	0/14	0	14/14	100
	8	0/2	0	2/2	100
	Total	0/67	0	67/67	100

(Cont.)

	Recording	Overt -*s*	%	Omission -*s*	%
	1	0/6	0	6/6	100
	2	1/15	7	14/15	93
	3	0/2	0	2/2	100
	4	1/8	13	7/8	88
Sammy	5	1/13	8	12/13	92
	6	0/16	0	16/16	100
	7	2/10	20	8/10	80
	8	3/10	30	7/10	70
	Total	8/80	10	72/80	90
	Recording	Overt -*s*	%	Omission -*s*	%
	1	0/5	0	5/5	100
	2	1/2	50	1/2	50
	3	0/5	0	5/5	100
	4	1/10	10	9/10	90
Hanna	5	1/6	17	5/6	83
	6	2/10	20	8/10	80
	7	0/6	0	6/6	100
	8	0/6	0	6/6	100
	Total	5/50	10	45/50	90

(Cont.)

	Recording	Overt -*s*	%	Omission -*s*	%
Jack	1	0/6	0	6/6	100
	2	0/12	0	12/12	100
	3	1/5	20	4/5	80
	4	1/14	7	13/14	93
	5	1/13	8	12/13	92
	6	0/9	0	9/9	100
	7	3/18	17	15/18	83
	Total	6/77	8	71/77	92
	Recording	Overt -*s*	%	Omission -*s*	%
Ann	1	23/35	66	12/35	34
	2	5/9	56	4/9	44
	3	4/9	44	5/9	56
	4	4/9	44	5/9	56
	5	12/14	86	2/14	14
	6	4/17	24	13/17	76
	7	5/8	63	3/8	38
	Total	57/101	56	44/101	44

APPENDIX F: SUPPLIANCE OF PAST TENSE MORPHOLOGY

	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Chris	1	0/1	0	1/1	100	1/9	11	8/9	89
	2	0/7	0	7/7	100	0/22	0	22/22	100
	3	0/13	0	13/13	100	0/15	0	15/15	100
	4	0/3	0	3/3	100	1/10	10	9/10	90
	5	0/18	0	18/18	100	1/11	9	10/11	91
	6	0/4	0	4/4	100	3/19	16	16/19	84
	7	0/7	0	7/7	100	5/27	19	22/27	81
	8	0/16	0	16/16	100	4/25	16	21/25	84
	Total	0/69	0	69/69	100	15/138	11	123/138	89

	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Lynn	1	0/2	0	2/2	100	1/7	14	6/7	86
	2	0/3	0	3/3	100	1/3	33	2/3	67
	3	0/2	0	2/2	100	4/18	22	14/18	78
	4	0/4	0	4/4	100	5/18	28	13/18	72
	5	0/6	0	6/6	100	8/24	33	16/24	67
	6	0/10	0	10/10	100	15/45	33	30/45	67
	7	4/14	29	10/14	71	11/32	34	21/32	66
	8	4/12	33	8/12	67	6/24	25	18/24	75
	Total	8/53	15	45/53	85	51/171	30	120/171	70

(Cont.)

	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Sammy	1	0/2	0	2/2	100	1/3	33	2/3	67
	2	0/7	0	7/7	100	9/13	69	4/13	31
	3	0/4	0	4/4	100	4/8	50	4/8	50
	4	0/12	0	12/12	100	6/14	43	8/14	57
	5	0/10	0	10/10	100	36/61	59	25/61	41
	6	1/10	10	9/10	90	8/17	47	9/17	53
	7	0/10	0	10/10	100	16/25	64	9/25	36
	8	4/16	25	12/16	75	20/33	61	13/33	39
	Total	5/71	7	66/71	93	100/174	57	74/174	43
	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Hanna	1	0/0	0	0/0	0	1/6	17	5/6	83
	2	0/1	0	1/1	100	1/5	20	4/5	80
	3	1/5	20	4/5	80	1/5	20	4/5	80
	4	0/5	0	5/5	100	5/16	31	11/16	69
	5	0/10	0	10/10	100	4/16	25	12/16	75
	6	0/6	0	6/6	100	5/18	28	13/18	72
	7	0/4	0	4/4	100	7/18	39	11/18	61
	8	3/14	21	11/14	79	10/19	53	9/19	47
	Total	4/45	9	41/45	91	34/103	33	69/103	67

(Cont.)

	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Jack	1	0/1	0	1/1	100	2/8	25	6/8	75
	2	3/14	21	11/14	79	1/11	9	10/11	91
	3	1/11	9	10/11	91	1/25	4	24/25	96
	4	3/16	19	13/16	81	4/27	15	23/27	85
	5	0/5	0	5/5	100	8/15	53	7/15	47
	6	1/13	8	12/13	92	8/30	27	22/30	73
	7	1/9	11	8/9	89	14/36	39	22/36	61
	Total	9/69	13	60/69	87	38/152	25	114/152	75
	Recording	Regular				Irregular			
		Overt	%	Omission	%	Overt	%	Omission	%
Ann	1	0/13	0	13/13	100	37/46	80	9/46	20
	2	3/16	19	13/16	81	41/54	76	13/54	24
	3	7/12	58	5/12	42	28/34	82	6/34	18
	4	4/27	15	23/27	85	34/45	76	11/45	24
	5	4/19	21	15/19	79	43/69	62	26/69	38
	6	6/15	40	9/15	60	18/28	64	10/28	36
	7	17/28	61	11/28	39	38/49	78	11/49	22
	Total	41/130	32	89/130	68	239/325	74	86/325	26